

**THE EFFECTS OF NONVERBAL SKILL  
ON  
DIMENSIONS OF GLOBAL PERSONALITY:  
SIX CORRELATIONAL AND NINE EXPERIMENTAL  
REPLICATED STUDIES**

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# THE EFFECTS OF NONVERBAL SKILL ON DIMENSIONS OF GLOBAL PERSONALITY

## FIVE CORRELATIONAL AND NINE EXPERIMENTAL REPLICATED STUDIES

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### Abstract

A research-based program was designed for the improvement of decoding and encoding nonverbal cues as they are important aspects of successful communication and teaching. To extend the scientific base of the program, six correlational studies (N=784) investigated relationships between nonverbal skill and personality dimensions. Low non-significant or inconsistent correlations were found between nonverbal sensitivity and extraversion, directiveness, competence and control orientations, and self-efficacy and "charisma" *but* significant positive relationships were found between encoding abilities (expressiveness/charisma) and the same personality dimensions (Part I of the paper). Nine experimental investigations (N=392) revealed significant improvements in nonverbal sensitivity, expressiveness, and unambiguousness of communication (Part II). These improvements contributed to significant changes in global personality dimensions: "charisma", extraversion, competence and control orientations, and self-efficacy (Part III). These findings may contribute to the understanding of the *nature* of personality dimensions as related to their perceptual and behavioral counterparts.

### Introduction

The success or failure of many interactional situations, like teaching, depends on the ability of the interactants to accurately decode what has been communicated. Simultaneously, they must bring out the full meaning of thoughts, intents, and affects as well as the understanding of the others through appropriate expressions. Much of the communication process is verbal, but the essence of eloquent, passionate, or spirited communication involves facial expressions, gestures, body position and movement, proxemics, and voice delivery to transmit powerfully affective elements so important to supporting, subtly extending or modifying verbal messages. The development of interpersonal attitudes, relationships, and emotional states, i.e., exciting, moving, inspiring, or captivating, is often determined by nonverbal "expressiveness", often called "charisma" or "spirit". This powerful variable is definitely related to the influence of communicators and to success in social interaction and teaching (Friedman, Prince, Riggio, & DiMatteo, 1980).

Most of the nonverbal skill, nonverbal perceptiveness and expressiveness, is derived from experiences in using and observing these nonverbal cues in daily and professional life; in some cases, it is acquired from on-the-job-training. Although nonverbal aspects of communication are seen generally and in research as a fundamental part of social competence, they are widely neglected even in the training of personnel in professions involving intensive human interaction, like teachers, clinicians, or business executives. However, as research strongly indicates, even frequent practice of nonverbal communication (including on-the-job-training) is insufficient, and does not improve the professional communicator's real

nonverbal abilities (Jecker, Maccoby; Breitrose, & Rose, 1964; Rosenthal, Hall, DiMatteo, Rogers, & Archer, 1979; Knapp & Hall, 2002; Klinzing & Gerada Aloisio, 2004a; 2004b).

Systematic training is necessary!

Thus, since the 1920s - in the fields of psychology and education - programs related to the improvement of this important aspect of social competence have been developed and studied for their effectiveness. In their research reviews, Rosenthal et al., (1979), Klinzing & Tisher (1986; updated: Klinzing & Gerada Aloisio, 2004b) and Klinzing (2003) found that programs using a laboratory approach (e.g., microteaching) turned out to be most successful, demonstrating impressively their effectiveness (Peck & Tucker, 1973; Turney, Clift, Dunkin, & Traill, 1973; Butcher, 1981; Cruickshank & Metcalfe, 1990; Klinzing & Tisher, 1986; 1993). From his review of about 240 studies on these methods Klinzing (2002) concluded:

*“The effectiveness of micro-teaching and related procedures is judged differently in articles on educational research and in textbooks. A review of more than 200 studies on these procedures via vote counting, however, reveals that only a very small number of the studies inspected really support the pessimistic point of view regarding the effectiveness of such training approaches, despite the fact that this view is propagated quite often. By far the majority of the research results, however, support the assumption that the employment of these procedures in both, pre- and inservice education will lead to positive and long-term effects in the acquisition of verbal and non-verbal behavioral patterns, in the integration of what has been learnt during training into the individual behavioral repertoire, and in the transfer into professional practice. This applies for “classic” microteaching (practical exercises in small student groups) as well as for the by far less expensive variant, the training in small groups formed by fellow students or fellow teachers (peerteaching).”* (Klinzing, 2002, 214).

These laboratory techniques claim a strong interrelationship of research and the development of programs intended to be evidence-based not only regarding the contents but also the methods used (Baker, 1973). Attempts were made to design and conduct studies in close connection with those programs either in their initial stages of their development or already designed and tested. This was due to the fact that it is seldom possible to find a complete set of research findings focusing on the development of an effective program for the improvement of desired abilities. Studies contributing to the scientific base of training approaches were concurrently integrated into the testing and evaluation of these programs. The studies conducted at Stanford University in connection with the development of microteaching (Allen Ryan, 1969) or at the Far West Laboratory for Educational Research and Development (FWL, Borg, Kelley, Langer, & Gall, 1970; Gall, 2007) are examples of such endeavours.

## **Purpose of Studies**

The project described below is of this tradition. Studies were conducted on the relationship between nonverbal skills (i.e., Nonverbal Sensitivity, Nonverbal expressiveness/“Charisma”) and selected attitudes and personality dimensions (i.e., directiveness, extraversion, self-efficacy, and competence and control orientations (Part I of the paper). Furthermore, integrated into the testing and evaluation of the program

(Part II of the paper) the investigations attempted to contribute to the understanding of the nature of these relationships, by examining if successful training may serve as a foundation from which positive changes can flow on consequentially to influence global personality dimensions (Part III of the paper).

The studies reported here represent continued replication-extension research in the Research, Development, and Evaluation/Research tradition. The need for replication is even more critical in education than in other disciplines because, in social sciences, often unavoidable flaws in research design and execution creep into the studies, e.g., variables remain uncontrolled, or findings may be limited in generalizability.

*“Indeed, the replication of research findings, rather than reliance on a single study and null-hypothesis testing of its statistical results, is fundamental to research in any scientific or professional discipline, including education.”* (Gall, Borg, & Gall, 2007, 148).

For example, through experimental mortality or through the selection/assignment of subjects, biases may be introduced. As in many educational studies, subjects are often volunteers who only then are randomly assigned to the experimental conditions. As Borg, Kelley, Langer, & Gall (1970, 83) noted, it is difficult to make any general observation about biases introduced by using volunteers as subjects, “since the variables that influence the decisions to volunteer are probably different for each one.” (Borg et al., 83). Replications then, instead of merely generalizing findings only in respect to other samples of volunteers, can increase the generalizability of findings. The studies reported here are continued (quasi) replications to examine the validity of findings from the earlier studies and their underlying theories over different situations, and in one case also populations, with different, more feasible measures, and over time, (e.g., the studies from the 1970s and 1980s reported by Klinzing & Gerada Aloisio, 2004b). But they not only tried to examine, confirm or disconfirm and to extend earlier findings (assuring and extending the scientific base of interventions); in the experimental studies they also served to determine how the intervention (the training program) can further be improved (especially in the sense of implementation in actual work settings, see part II and III of this paper).

The purpose of the research program reported in this article was to:

- 1) conduct five correlational studies to extend earlier findings on the relationships of nonverbal skill (nonverbal sensitivity, expressiveness, “charisma”) and personality dimensions (Extraversion, Directiveness, Competence and Control Orientations, Self efficacy) to contribute to the scientific base for the development of a training program (=Part I of the paper);
- 2) develop, test, and evaluate a research based training program in laboratory format to improve nonverbal skills (Part II of the paper);
- 3) use that program to hypothesize the causal nature of the relationships between nonverbal skills (nonverbal sensitivity and expressiveness), and selected personality dimensions, examined in

foregoing correlational studies (Part III of the paper).

## **Rationale/Review of Research**

Skill in nonverbal communication is often seen as a fundamental part of social competence (Knapp & Hall, 2002). The ability to *accurately decode* and to *send* nonverbal cues *expressively and unambiguously*, matters greatly in daily and professional life.

***Accuracy of Decoding Nonverbal Cues.*** One of the key competencies for effective communication is understanding socially agreed upon meanings for nonverbal cues. For example, research was done on the relationships between nonverbal judgment ability, clinical ability, or teaching excellence (Rosenthal et al., 1979), and the satisfaction and appointment-keeping records of actual patients of physicians (DiMatteo, Hays, & Prince, 1986; DiMatteo, Taranta, Friedman, & Prince, 1980). The results suggest the desirability of nonverbal sensitivity among professionals. Also the power of this variable is suggested by its relationship to a wide range of social-psychological and personal dimensions (see below).

In face-to-face communication interactants are decoding and encoding nonverbal cues simultaneously. Are receiving and sending skills part of a general communication ability? If this is the case, then decoding and encoding skills would be related and the task of training programs could be reduced to just discrimination training as it was often suggested (e.g., Hargie & Maidment, 1978). However, reported findings from about a dozen studies found positive, weak as well as negative relationships (Knapp & Hall, 2002). The authors concluded:

*“Evidence is extremely mixed on whether being a good decoder implies being a good encoder. It does not necessarily follow that proficiency in one skill (encoding or decoding) makes one proficient in the other, although sometimes this is the case. Skill in one area may detract from proficiency in another.”* (Knapp & Hall, 2002, 98).

The present project offered the opportunity to replicate findings obtained in these earlier studies.

***Expressiveness and Unambiguosness in Nonverbal Encoding.*** From the rich body of research it can be concluded that nonverbal encoding skills play a crucial role in presentations, face-to-face communication and teaching. Two aspects of nonverbal encoding are of particular importance: *expressiveness* (frequency, intensity and variety of nonverbal expressions) and *unambiguosness* of sending.

The expressive use of nonverbal cues is often investigated and discussed as an ingredient of more general, sometimes elusive terms like: buoyancy, enthusiasm, or charisma. Research reviews of Barr (1948), Rosenshine (1970), Klinzing (1984), Klinzing & Gerada Aloisio (2004b) concluded that high-inference measures of those variables as well as frequencies of low-inference variables such as movement, gesture, eye contact, and variations in voice are related to aspects of *professional success*

(i.e., for teachers to measures of desired student/audience behaviors, attitudes and achievements). Charismatic physicians were likely to have more patients than their less charismatic colleagues (DiMatteo, 1979; see Knapp & Hall, 2002). Again, the relationship of this ability to a wide range of social-psychological and personal dimensions is indicative of its power (see below).

Overlapping and complementary with expressive nonverbal encoding is the degree of *accuracy/unambiguity* of nonverbal sending. The potential to send more than one message at a time through nonverbal and verbal modes of communication in varying degrees of consistency with one another can, when judiciously used, contribute to the subtlety, and unambiguity of communication. For example, interestingness, attentiveness and group participation are improved and dysfunctional behavior is reduced through the use of more than one message at a time (Woolfolk & Brooks, 1983). Also, adequacy of nonverbal communication is related to marital happiness and patients' satisfaction. Nevertheless, when misused or overused, multiple simultaneous messages can lead to inconsistencies and, therefore, undesired and even harmful effects (Knapp & Hall, 2002; Klinzing & Gerada, 2004a).

Although encoding and decoding might be different skills, accuracy, unambiguity of communication can be seen as inextricably connected to both the sender and receiver. Sensitivity to nonverbal cues *and* in nonverbal expressiveness and clarity of nonverbal sending are reflected in the degree to which a common perception of the behavior exhibited is held by sender and receiver. Reduction of the discrepancy between experienced and observed performance, however, requires not just change in perception, but also in behavior. This idea is - at least partly - reflected in the concept of "*Self-Realism*" as an important base for the facilitation of behavioral change (Fuller & Manning, 1973).

### ***Psychosocial and Personality Correlates of Nonverbal Decoding and Encoding Ability***

Research on the relationships of nonverbal skill/expressiveness with a wide range of psychosocial or personality dimensions not only refer to the power of this aspect of communication but also contribute to the understanding of psychosocial constructs and their interactions. Most of the older research focuses on effects of global communicators' characteristics in a dependent relation to more concrete abilities and behaviors (Giles & Street, 1985).

Skilled **decoders** of nonverbal signs and signals are shown to possess the following characteristics: they have been found to be "*better adjusted, less hostile and manipulating, more interpersonally democratic and encouraging, more extraverted, less shy, less socially anxious, more warm, more empathic, more cognitively complex and flexible.*" (Knapp & Hall, 2002, 85). In keeping with possession of these desirable characteristics, skilled nonverbal decoders are more *self-monitoring*, are considered more *popular and sensitive* to the needs of others, and report higher levels of *warmth and satisfaction* in their own personal relationships (Hall, 1998; Knapp & Hall, 2002). Mental patients scored considerably lower than the other groups tested with the Profile of Nonverbal Sensitivity (PONS, Rosenthal et al., 1979).

The skill of decoding nonverbal signs and signals develops from childhood until age 20 to 30 and seems to decrease later on in life (Knapp & Hall, 2002). In the studies of Rosenthal et al. (1979) positive correlations were found in samples of young test-takers while negative correlations were found among adults. In a study by Liebermann, Rigo & Campain (1988), women averaging 62 years were compared to women averaging 22 years in nonverbal sensitivity using the PONS; the scores of the older turned out to be significantly lower. Also in two studies of Klinzing & Gerada Aloisio (2004a; 2005), significant differences emerged between school principals (age: M = 51 years) and university students (age: M = 26 years) and between docents of forestry (age: M=48 years) and their students (age:M=23 years) in *decoding abilities*, in favor of the latter. These results point to those reported by Rosenthal et al. (1979) suggesting that decoding skills may also be status related. Findings in samples from the USA, Australia, and Canada show that greater professional advancement was associated with lower nonverbal sensitivity. All these findings suggest that advancement in age and status may reflect changes in attention, memory, and perception. According to this assumption, data were collected to examine differences in decoding (and encoding) skills in the studies reported in this paper.

Investigations were conducted examining psychosocial correlates of **encoding abilities** by using the *Affective Communication Test* to assess “charisma”/“spirit” (ACT, Friedman et al., 1980). Measuring in part the encoding ability in terms of nonverbal expressiveness (considered itself as an important aspect of personality), these studies documented that people who were more expressive/“charismatic”, were perceived as more likable while meeting new people. They were able to influence others’ mood, had lectured to groups of people, had been an elected official of an organization, had theatrical experience, had opted or were selected for employment that involved working with and influencing people, or had worked as a sales person (Friedman et al., 1980).

There is some evidence that intensive nonverbal expressiveness is related to unambiguousness in encoding. Accurate senders make the impression of greater expressiveness, confidence, and likeability and, among males, use more fluent speech, more fluent body movements, and more smiles (Riggio & Friedman, 1986). Training studies in which the successful enhancement of nonverbal expressiveness was achieved, an improvement of clarity of presentation could be observed at the same time (Klinzing, Fitzner, & Klinzing-Eurich, 1983; Klinzing, Kunkel, Schiefer & Steiger, 1984; Klinzing, 1988a; 1988b).

Besides these social-psychological variables, also various **personality dimensions** are closely tied to expressiveness/charisma. Research on personality dimensions and the ability to enact affects revealed significant relations to characteristics considered as important for social life like *affiliation, extraversion, self-esteem, and internal locus of control (internality)*. They were also related to *achievement orientation, exhibition* (being colourful, spellbinding, noticeable, expressive, dramatic, and showy), *playfulness*, and *dominance*. Of interest is also with what variables charisma was only *weakly* or *not* related: *social desirability, self-monitoring, impulsivity, trait anxiety, self-monitoring, lie* and *machiavellianism*. Charisma

was negatively related to *neuroticism* and *social recognition*. Also no relationship between age and expressiveness was found (Klinzing & Gerada Aloisio, 2004a). Furthermore, individuals with schizophrenia tended to show reduced facial expressivity and more negative than positive expressions (Friedman et al., 1980a; Friedman, Riggio, & Segall, 1980; Friedman & Riggio, 1981; Friedman, Riggio, & Cassella, 1988). Thus, an increasing evidence on the relationship between “charisma” (understood largely as nonverbal expressiveness) and various personality dimensions suggests that a powerful variable is tapped which strongly influences interaction with others.

***Unambiguousness of Communication*** is related to confidence, likeability, and, regarding personality dimensions, to dominance and exhibitionism (Friedman et al., 1980); again, individuals with schizophrenia tended to show less congruence between verbal and facial messages, and were less accurate in facial and vocal expressions of affect (Knapp & Hall, 2002, 91).

Thus, nonverbal expressiveness is a social interactional counterpart of certain psychosocial and personality dimensions which are assumed to be important for professions involving intensive human interaction, like teaching.

The findings of some of these relationships were replicated in the German context as reported in this paper.

## **Part I: Relationships between Nonverbal Skill and Personality Characteristics.**

### **Six Correlational Studies**

As sketched above research predominately conducted in the USA offers findings of relationships between psychosocial and personality dimensions and their social interactional counterparts in terms of nonverbal sensitivity and expressiveness. Do these findings also apply in the German context? Five correlational studies (C1 – C5) were conducted in the lectures and seminars of the first author, in connection with the development of a training program to improve nonverbal skill (see Part II of the paper).

#### ***Hypotheses***

The following hypotheses were formulated as null-hypotheses for the six studies:

There is no significant ( $p < 0.05$ ) relationship between:

- 1.1 Nonverbal Sensitivity (assessed with the PONS) and *Directiveness* (assessed with the F-D-E);
- 1.2 Nonverbal Sensitivity (PONS) and Extraversion (F-D-E);
- 1.3 Nonverbal Sensitivity (PONS) and Self-Efficacy (assessed with the FEW);
- 1.4 Nonverbal Sensitivity (PONS) and Competence and Control Orientations (assessed

with the FKK);

1.5 Nonverbal Sensitivity (PONS) and Age;

2.1 Encoding Ability (assessed as “Charisma” with the ACT) and Directiveness (F-D-E);

2.2 “Charisma” (ACT) and Extraversion (F-D-E);

2.3 “Charisma” (ACT) and Self-Efficacy (FEW);

2.4 “Charisma” (ACT) and Competence and Control Orientations;

2.5 “Charisma” (ACT) and Age;

3. Nonverbal Sensitivity (assessed with the PONS) and Encoding Ability (assessed as “Charisma” with the ACT).

### ***Subjects of the Correlational Studies***

Altogether **784** undergraduate student teachers and students studying pedagogy as a major in a large German University signed up to participate in the five correlational studies. *Figure C1* gives a profile of the participants of the studies based on age, gender, number of semesters completed, and majors studied at the university.

For some participants data were not available for a number of reasons: momentary indispositions; some of the participants could not complete the test because they had to leave the session before the test was administered, they did not attend the session in which the test was administered, or forgot to insert their personal code, making it impossible to relate one test to the other.

### ***Data Source***

**1. The Assessment of Decoding Ability.** To assess the degree of accuracy of decoding, the *Profile of Nonverbal Sensitivity* (PONS-test, Rosenthal et al., 1979) was administered. This test utilizes a 47-minute black and white film and sound track composed of 220 numbered two-second auditory and/or visual segments. For each segment, test takers have to select from two descriptions of everyday life situations the one which best corresponds to the segment shown. The 220 segments are based on 20 scenes categorized into four quadrants, of five scenes each, on the *positivity* and *dominance* dimension: the positive-dominant, the positive-submissive, the negative-dominant, and the negative-submissive behavior. Reliabilities of the PONS-test (test-retest reliability: 0.69; internal consistency: 0.86) and the promising indications for validity of this instrument, are given by Rosenthal et al. (1979).

**Figure C1: Profile of the Participants in the Correlational Studies (C1 – C5)**

<b><u>Study C1:</u></b> N=117; female=100; male=17 (Age: M=22.7; s=4.5; semester completed: 1.63; s = 1.4; no information: 2;)					
<b>Majors:</b>					
<i>Diploma</i>	<i>MA</i>	<i>Student Teachers</i>			
	Pedagogy + Sociology, Philology, History, Philosophy, Linguistics, Arts., Political Sc. etc.	Philol- ology	Mathm./ Sciences	Mathm./ Sciences/ Philolo- logy	Sport/ Phil. oder Sciences
73	38	6	0	0	0
<hr/>					
<b><u>Study C2:</u></b> N=119; 19 male; 100 female (Age: M =22.95; s =4.15 years)					
<b>Majors:</b>					
58	37	17	1	2	4
<hr/>					
<b><u>Study C3:</u></b> N=179; female: 144; male: 33 (Age: M = 24.10; s=4.02 years; Semester completed: M=5.32, s=2.59; no information: 1 + 2)					
<b>Majors:</b>					
29	40	53	10	22	22
No information: 2					
<hr/>					
<b><u>Study C4:</u></b> N=171 (Age: M=23.30, s=3.47 years; Semester completed: M=4.30, s=2.67; no information: 8);					
<b>Majors:</b>					
38 + 2 Medicine;	51	63	2	9	8
<hr/>					
<b><u>Study C5:</u></b> N=102; female: 81; male: 21 (Age: M=23.32, s=4.66); Semester completed: M=3.21 (s= 2.16)(N=98);					
<b>Majors:</b>					
52	24	10	0	8	7
No information: 1					
<hr/>					
<b><u>Study 6:</u></b> N=96; female: 70; male: 25 (Age: M=24.54, s=5.07); Semester completed: M=5.34 (s= 2.26).					
<b>Majors:</b>					
21	22	30	4	7	12

The studies reported here and other studies form part of a project which started in 2003/2004 with the collection of data using the PONS-test. Since then there were students who took the PONS a second time. They participated in lectures and seminars in which data were also collected with this test. Because the test effects of the PONS are strong (see Rosenthal et al., 1979; Klinzing, 2003) the data of participants who took the PONS the first time have been calculated separately from those of the “test repetitioners”.

**2. The Assessment of Encoding Ability:** To assess encoding ability – “charisma”, the **Affective**

**Communication Test (ACT)** was administered. As mentioned above, much of what is meant by this powerful variable can be understood by nonverbal expressiveness. This paper-and-pencil self-report developed and carefully studied by Friedman et al., (1980) as a measure of individual differences in nonverbal communication ability in terms of expressiveness, "charisma"/"spirit", consists of 13 items. For each item subjects indicate on a nine-point scale from -4 to +4 the extent to which the statement is true or false as it applies to her or him. Test-retest reliability and internal consistency ranged from .77 to .91. Studies to validate this test turned out to be very promising (Friedman et al., 1980).

**3. The Assessment of Attitudes and Personality Dimensions.** To examine the relationship between nonverbal skill and personality dimensions three paper and pencil tests were administered.

**3.1/3.2: Directiveness and Extraversion:** The *Questionnaire of Directiveness* ("Fragebogen zur direktiven Einstellung", F-D-E, Bastine & Brengelmann, 1971, Bastine, 1971) contains 16 items (six-point scales) to determine Extraversion (derived from Brengelmann & Brengelmann, 1960) and 16 items to determine Directiveness. Reliabilities in terms of internal consistency in different samples ranged from 0.80 to 0.89, in terms of test-retest reliability from 0.80 to 0.95 for both scales (Bastine, 1971). Indications for validity of this test are promising; these and norms are given by Bastine (1971). Indications for treatment validity (Popham, 1975) can be derived from studies reported by Klinzing & Gerada Aloisio (2004a) and Klinzing, Köhler, Laupp, & Gerada Aloisio (2004b). This test was administered in *Study C1-C5*.

**3.3 Control- and Competence Orientations:** the "**Fragebogen zu Kompetenz- und Kontrollueberzeugungen**" (FKK, 32 items, six-point-scales, Krampen, 1991) was administered in *Study C4* and *C5*. This test consists of four primary scales with eight items each:

1. *Generalized Self-Concept of own Abilities (SK)*;
2. *Internality of Control Orientations (I)*;
3. *Social Externality of Control Orientation* (powerful others' control orientation, P);
4. *Fatalistic Externality of Control Orientation* (chance control orientation, C).

Besides these primary scales there are combined, secondary scales:

1. *Self-efficacy (SKI, 16 items)* combines SK (*Self-Concept of Own Abilities*) and I (*Internality*); and
2. *Externality of Control Orientation (PC = 18 items)*, combines P (*Social Externality of Control Orientation*, P) and C (*Fatalistic Externality of Control Orientation*).

A tertiary scale, *Internality versus Externality (32 items)*, was constructed on the difference between

SKI (*Self-efficacy*) and PC (*Externality*) (SKI – PC).

Reliabilities in terms of internal consistency and test-retest reliability in different samples ranged from 0.70 to 0.90, across all scales. Indications for validity of this test in terms of content, discriminant and convergent validity, and treatment validity are promising (Krampen, 1991).

**3.4 The *Perceived Self-Efficacy Scale*** (Schwarzer, Mueller, & Greenglass, 1999; 10 items, four-point-scales) was administered in *Study C5* to measure the generalized sense of self-efficacy. This test was developed on the base of Bandura's concept of self-efficacy (Bandura 1977; 1986; 1997). The scale is reliable (alpha = .75 and .90), it has also proven valid in terms of convergent and discriminant validity. (For example, it correlates positively with self-esteem and optimism and negatively with anxiety, depression and physical symptoms).

## Results

The results for the relation of *Nonverbal Sensitivity* (PONS) to *Directiveness* (rigid, imposing attitudes), Extraversion, "Charisma", Self-Efficacy, and Competence and Control Orientation are summarized in *Table C1*.

As the results in *Table C1* indicate, correlations between accuracy of *decoding* (PONS) and personality dimensions turned out to be low and/or inconsistent (*nonverbal sensitivity* – *directiveness*; *nonverbal sensitivity* – *extraversion*; *nonverbal sensitivity* – *self efficacy*). **Null-Hypotheses 1.1, 1.2, and 1.3** cannot be rejected. There are some small positive *and* negative relationships between PONS and aspects of Competence and Control Orientations, ranging from  $r = 0.24$  to  $r = -0.15$  (statistical significant in *Study 4* for Self Concept of Own Competencies,  $p < 0.05$ , Internality,  $p < 0.05$ , and for the combined scores: *Self-Efficacy*, SKI,  $p < 0.01$  and *Internality* – *Externality*, SKI-PC,  $p < 0.01$ ; statistical significant negatively related,  $p < 0.05$ , in *Study 5* for Internality). Because of the sizes of correlations and inconsistencies also **Null-Hypothesis 1.4** can therefore not be rejected. Interestingly, as in the studies conducted in USA (Rosenthal et al., 1979; Knapp & Hall, 2002) and in Germany (Klinzing & Gerada Aloisio, 2004a; 2005) the results for the relationship between age and Nonverbal Sensitivity among adults indicate that there might be a loss of nonverbal perceptiveness as one gets older. **Null-Hypothesis 1.5** can be rejected.

As in the studies from the USA (Knapp & Hall, 2002), no statistical or practical significant relationships could be obtained between decoding and encoding abilities in the German studies. **Null-Hypothesis 3** can not be rejected.

**Table C1: Relationships between Nonverbal Sensitivity (PONS) and Directiveness (rigid, imposing attitudes), Extraversion, “Charisma”, Self-Efficacy, and Competence and Control Orientation. Pearson Product Moment Correlations and p-Values for Study C1 – C5.\***

	Study C1	Study C2	Study C3	Study C4	Study C5	Study C6
<i>Profile of Nonverbal Sensitivity (PONS)</i>						
	<i>r (p**)</i>	<i>r (p**)</i>	<i>r (p**)</i>	<i>r (p**)</i>	<i>r (p**)</i>	<i>r (p**)</i>
<b>Directiveness</b> (Whole Group)	***	<b>0.08 (n.s.)</b> (N=69)	<b>-0.03 (n.s.)</b> (N=133)	<b>-0.09 (n.s.)</b> (N=140)	<b>-0.01 (n.s.)</b> (N=92)	<b>-0.008 (n.s.)</b> (N=94)
<b>Directiveness</b> (Without Testrep.)	<b>-0.02 (n.s.)</b> (N=97)	<b>0.15 (n.s.)</b> (N=38)	<b>-0.15 (n.s.)</b> (N=133)	<b>-0.07 (n.s.)</b> (N=133)	<b>0.04 (n.s.)</b> (N=79)	<b>-0.01 (n.s.)</b> (N=66)
<b>Extraversion</b> (Whole Group)	***	<b>0.26 (p&lt;0.05)</b> (N=69)	<b>0.05 (n.s.)</b> (N=133)	<b>-0.06 (n.s.)</b> (N=140)	<b>-0.14 (n.s.)</b> (N=92)	<b>0.12 (n.s.)</b> (N=94)
<b>Extraversion</b> (Without Testrep.)	<b>-0.06 (n.s.)</b> (N=97)	<b>0.27 (n.s.)</b> (N=38)	<b>-0.05 (n.s.)</b> (N=133)	<b>0.07 (n.s.)</b> (N=133)	<b>-0.05 (n.s.)</b> (N=79)	<b>0.002 (n.s.)</b> (N=66)
<b>Self-Efficacy</b> (Whole Group)	***	***	***	<b>0.13 (n.s.)</b> (N=166)	<b>0.10 (n.s.)</b> (N=91)	<b>0.09 (n.s.)</b> (N=95)
<b>Self-Efficacy</b> (Without Testrep.)	***	***	***	<b>0.14 (n.s.)</b> (N=155)	<b>0.05 (n.s.)</b> (N=78)	<b>0.02 (n.s.)</b> (N=66)
<b>“Charisma”</b> (Whole Group)	***	<b>0.11 (n.s.)</b> (N=66)	<b>0.10 (n.s.)</b> (N=170)	<b>0.05 (n.s.)</b> (N=157)	<b>-0.02 (n.s.)</b> (N=91)	<b>0.14 (n.s.)</b> (N=95)
<b>“Charisma”</b> (Without Testrep.)	<b>0.05 (n.s.)</b> (N=96)	<b>0.13 (n.s.)</b> (N=27)	<b>0.13 (n.s.)</b> (N=136)	<b>0.06 (n.s.)</b> (N=151)	<b>0.03 (n.s.)</b> (N=79)	<b>0.02 (n.s.)</b> (N=66)

\*Due to fairly normal lapses data were not available for some participants.

**Table C2: Relationships between “Charisma” (ACT) and Directiveness, Extraversion, and Competence- and Control Orientations. Pearson Product Moment Correlations for Study C1 – C5.\***

	<b>“Charisma”</b>					
	<b>Study C1 r (p)</b>	<b>Study C2 r (p)</b>	<b>Study C3 r (p)</b>	<b>Study C4 r (p)</b>	<b>Study C5 r (p)</b>	<b>Study C6 r (p)</b>
<b>Directiveness</b> (Whole Group)	<b>0.22</b> (N=72)	<b>0.13 (n.s.)</b> (N=48)	<b>0.12 (n.s.)</b> (N=123)	<b>0.30(p&lt;0.01)</b> (N=143)	<b>0.31 (p&lt;0.01)</b> (N=101)	<b>0.13 (n.s.)</b> (N=95)
<b>Extraversion</b> (Whole Group)	<b>0.66 (p&lt;0.01)</b> (N=72)	<b>0.42 (p&lt;0.01)</b> (N=48)	<b>0.51 (p&lt;0.01)</b> (N=133)	<b>0.64 (p&lt;0.01)</b> (N=143)	<b>0.68 (p&lt;0.01)</b> (N=101)	<b>0.65 (p&lt;0.01)</b> (N=96)
<b>Self - Efficacy</b> (Whole Group)	<b>***</b>	<b>***</b>	<b>***</b>	<b>0.45 (p&lt;0.01)</b> (N=158)	<b>0.23 (p&lt;0.05)</b> (N=101)	<b>0.30 (p&lt;0.05)</b> (N=96)

Table C2, cont.

	Study C1 r (p)	Study C2 r (p)	Study C3 r (p)	Study C4 r (p)	Study C5 r (p)	Study C6 r (p)
<b>Competence and Control Orientations (FKK)</b>				<b>N=169)</b>	<b>(N=101)</b>	<b>(N=96)</b>
<i>Self Concept of (p&lt;0.01) Own Competencies (SK)</i>	***	***	***	0.31 (p<0.01)	0.34 (p<0.01)	0.30
<i>Internality (I)</i>	***	***	***	0.22 (p<0.01)	0.24 (p<0.05)	0.23 (n.s.)
<i>Social (p&lt;0.05) Externality (P)</i>	***	***	***	-0.15 (n.s.)	-0.13 (n.s.)	-0.24
<i>Fatalistic Externality (C)</i>	***	***	***	-0.18 (p<0.05)	-0.15 (n.s.)	-0.19 (n.s.)
<i>Self-Efficacy (p&lt;0.01) (Combined Score of SK and I)</i>	***	***	***	0.30 (p<0-01)	0.33 (p<0.01)	0.30
<i>Externality (p&lt;0.05) (Combined Score of P+C)</i>	***	***	***	-0.19 (p<0.05)	-0.16 (n.s.)	-0.24
<i>Internality vs. (p&lt;0.01) Externality (SKI – PC)</i>	***	***	***	0.29 (p<0.01)	0.27(p<0.01)	0.30
<b>Age</b>	<b>0.14 (n.s.)</b>	<b>0.22 (n.s.)</b>	<b>0.13 (n.s.)</b>	<b>0.09 (n.s.)</b>	<b>0.16 (n.s.)</b>	<b>0.11 (n.s.)</b>

\*Due to fairly normal lapses data were not available for some participants.

**2. Results for the Relationships between Encoding Abilities (assessed as “Charisma” with the Affective Communication Test, ACT) and Personality Dimensions.** These findings are summarized in *Table C2*.

The results, as summarized in *Table C2*, show that there are significant correlations between nonverbal encoding abilities (“Charisma”/Nonverbal Expressiveness), Extraversion, Self-Efficacy, and scales of Competence and Control Orientations (Self Concept of Own Competencies, Internality, Self-Efficacy, and the Total Score: Internality – Externality). The **Null-Hypotheses 2.2, 2.3 and 2.4** can be rejected. While Directiveness is weakly related to “Charisma” in Study 1, 2, 3, and 6, in *Study 4* and *5* these variables are moderately related. **Null-Hypothesis 2.1** can therefore only be rejected for *Study 4* and *5*. There is a small positive, but not significant relationship between age and “charisma”. In contradiction to findings for Nonverbal Sensitivity (see above), there is *no* loss of Charisma with Age. **Null-Hypothesis 2.5** can not be rejected.

## Summary of Part I

The results regarding findings on relationships for nonverbal sensitivity are disappointing. In the present studies, the relationship between accuracy in **decoding** and personality dimensions turned out to be low or inconsistent.

The relationship between PONS and Extraversion and between PONS and (Non-)directiveness, as reported by Rosenthal et al. (1979) and Knapp & Hall (2002), were only replicated in two instances in the German context with two exceptions: a (small but significant) loss of Nonverbal Sensitivity with age (see also Klinzing & Gerada Aloisio, 2004a; 2005) and the non-existent relationship between *decoding* and *encoding* abilities. Encoding and Decoding abilities do not belong to the same aspect of communicative competence also in the German context. For nonverbal decoding abilities, the present studies can not extend the research on the importance of nonverbal sensitivity and the characterization of skilled decoders conducted in the USA (see above).

But the findings for charisma/spirit are promising. Positive and significant relationships could be found between **encoding abilities** (assessed with the ACT as “charisma” understood as nonverbal expressiveness) and Extraversion, Self-Efficacy, and scales of Competence and Control Orientations. Thus, these findings from studies conducted in the USA could be replicated in the German context: the findings for relationships between “charisma”/expressiveness and Extraversion as well as for Internal Locus of Control (see Friedman et al., 1980) and partly for Directiveness. Furthermore, the actual research could be extended with positive correlations of “charisma”/expressiveness with scales of Competence and Control Orientations, like Self-Concept of Own Competencies, Self-efficacy, and the global score of Control Orientations: Internality - Externality. Results also indicate that there is no loss of “charisma” with age as it was also found in the study of Klinzing & Gerada Aloisio (2004a).

From the findings of the studies conducted in this project and in the USA, it can be concluded that the

systematic relationship between charisma or nonverbal expressiveness and various dimensions of psychosocial and personality dimensions point to the importance of this variable.

Moreover, a refined understanding of this concept has emerged. Charisma is the ability to convey messages expressively and unambiguously (see Klinzing & Gerada Aloisio, 2007), thereby to excite or captivate others, - an essential quality of people in various occupations which are related to social interaction and influence like teaching. "Charisma" contributes to better interpersonal adjustment and thus to the success in interpersonal relations.

"Charismatic" persons are characterized as affiliative, extraverted, possessing a healthy Achievement-orientation, Self-esteem, Self-concept of Own Abilities, internal Locus of Control, and Self-efficacy-expectation. On the other hand, expressiveness is not related to trait-anxiety or emotionality, and only weakly related to Self-monitoring. Charisma is more than mere sociability or a function of acting ability; expressiveness is a characteristic that influences successfully the emotions, the attitudes, and the behavior of interactants and consequently the outcomes of interactional situations (Klinzing, 1984; Klinzing & Gerada Aloisio, 2004b), like achievement, or popularity.

But does charisma equate to manipulation? In other words, is a charismatic leader, for example, manipulative? As the research of Friedman et al. (1980, 348) demonstrated, expressive persons have a degree of exhibition in that they want to impress, be at the center of attention, and therefore to be heard and seen. This desire is translated into reality through impressive communication. Charisma, therefore, although somewhat related to dominance, is not the desire and ability to manipulate but rather the ability to be successful in interactional situations.

Thus, charisma can be seen as an important variable for effective leadership and teaching - a worthwhile outcome of systematic training.

## **Part II: Development, Testing, and Evaluation of a Training Program to Improve Nonverbal Skill**

### **Rationale/Research Review**

As mentioned above, research suggests that mere experience in observing and using nonverbal cues in daily living or on-the-job-training is not sufficient to improve the communicator's ability to interpret accurately and/or to convey nonverbal messages effectively (Jecker et al., 1964; Rosenthal et al., 1979; Klinzing, 2004). Training is needed. Thus, programs were developed to improve these important aspects of social competence.

***Improving Nonverbal Decoding Ability.*** Programs to improve the accuracy of nonverbal decoding were designed at the beginning of the 20<sup>th</sup> century (see, e.g., Rudolph, 1903). Since the 1920s projects related to the improvement of this aspect of communication, mostly using a laboratory approach, were

studied for their effectiveness in the fields of psychology and education. Rosenthal et al. (1979). Klinzing & Tisher (1986), Klinzing & Jackson (1987), and Klinzing & Gerada Aloisio (2004b) concluded from integrations of findings of 77 studies that systematic training in laboratory settings can have a positive impact on the *sensitivity* to nonverbal signs and signals. Studies using *specifically designed practice in decoding nonverbal signs and signals (discrimination training)* or a **combination of laboratory techniques** generally achieved significant positive results. The latter include a theoretical presentation, and opportunities not only to acquire behavior and/or discrimination training, but - most importantly - also opportunities to practice the previously learned behaviors *in microtraining* or *in focused and controlled real practice settings*, with processes of intensive feedback (video-recordings, ratings of nonverbal behavior, group discussion; Klinzing & Gerada Aloisio, 2006). The overall effect size was: **M ES = 0.81** (Klinzing & Gerada Aloisio, 2004b).

**Improving Nonverbal Expressiveness and Unambiguousness of Communication.** As for nonverbal sensitivity, nonverbal encoding skill is usually acquired in daily life and in on-the-job-training. Because this is seen as insufficient for professions involving human interaction like teaching, programs of systematic training have been developed, evaluated by participants and tested for their effectiveness since the 1960s. In their research review, Klinzing & Tisher (1986) and Klinzing & Jackson (1987; update, Klinzing & Gerada Aloisio, 2004b) integrated through meta-analysis the results of 39 studies on the effectiveness of training programs. In 12 studies the performance tests were conducted in scaled down situations, in 22 studies in real classrooms. Nine studies tested particular program components. 24 of the 36 training studies reported positive gains (in 18 these positive findings achieved statistical significance), three negative results (one achieved statistical significance), and seven no effect. From 22 studies an overall effect size of **ES = 0.64** could be calculated.

By and large the research seems to indicate that when three and preferably more of the following components, namely presentation of theoretical background knowledge, skill acquisition exercises (for example, modelling/discrimination training), sufficient opportunities for focused practice, and focused, intensive feedback are included in a training program, the quality and quantity of the teachers' nonverbal behavior can be enhanced.

Furthermore, it was demonstrated that improvement could be achieved not only in behaviors directly related to the training objectives (nonverbal expressiveness) but also in broader dimensions like social climate, energy, enthusiasm, encouragement, interest and clarity of presentation, persuasiveness, and assertiveness of the trainees. Moreover, due to training of teachers, some directly observable pupil behaviors like on-task behavior, attention, and interest were improved. Positive results were obtained for pupil attitudes and for student ratings of teachers' effectiveness. No or even negative findings, however, were obtained for pay-offs like pupil achievement in these training studies (Klinzing & Tisher, 1986; Klinzing & Gerada Aloisio, 2004b). No studies could be located investigating the effects of nonverbal behaviour training on personality dimensions. But the studies cited give some indication that improvements in nonverbal skill will flow also onto broader dimensions and have impact on the interaction with interactants.

According to the recommendations derived from the research, Klinzing & Gerada Aloisio (2004a) developed a 30 hour four day training program to improve Nonverbal Sensitivity, Nonverbal Expressiveness, and Unambiguousness of Communication.

### **The Program/Treatments**

The **Contents of the Program** were organized into sub-tasks to be acquired stepwise: *cognitive functions of nonverbal cues* in kinesics (para-semantic and para-syntactic) represented *Part 1* of the program, *affective functions* in kinesics (expression of emotions, interpersonal attitudes), and *regulation functions* represented *Part 2*. *Part 3* was devoted to the improvement of *nonverbal vocalizations*. These functions were again decomposed into sub-components by relating them to communication modes (e.g., specific facial expression) and then described in terms of their *low inference constituents* (like specific facial expressions or gestures) according to the analytical approach (Gage, 1972).

**Structure and Components of the Training Program.** The program is designed using a Teaching Laboratory approach (*"Interacting as Experimenting"*, see Klinzing, 1982; Klinzing & Floden, 1990) which combines different educational techniques aimed at the improvement of the following interrelated and overlapping knowledge and abilities: acquisition of theoretical knowledge, the ability to use concepts as organizing tools, to generate hypotheses, to make and test decisions, to skillfully carry out actions, and to reflect upon the execution of behaviors and their consequences (Klinzing & Floden, 1990).

Thus, the learning process for each of the three parts and within the parts of the program is based on the following components (see Klinzing & Floden, 1990, 178f; Klinzing & Gerada Aloisio, 2004a):

**Acquisition of Theoretical Background Knowledge.** This is made possible by formal instructions including lectures, readings, and discussions in small and large groups (based on 60-70 pages of written material), with focus on nonverbal processes. The program tries to incorporate the best evidence available regarding which concepts are important and which sorts of nonverbal actions and reactions are most likely to lead to which consequences, under which contexts and circumstances. The aim is to link effectively theoretical knowledge to concepts of important nonverbal features, to guide analysis and hypothesis generation, and to help trainees carry out actions skillfully.

Also information is provided on the program-design, the training methods used, and their use for the improvement of nonverbal skills after the formal training course.

**Ability to Understand and Use Concepts as Organizing Tools: Discrimination Training, Skill Acquisition Exercises, Modelling, and Simulations.** To enable the trainees to use concepts as analytical, organizational tools, lectures with pictures and life demonstrations focused on specific behaviors (symbolic and perceptual modelling) are provided. In addition, decoding exercises, and skill acquisition exercises are offered. The latter are to develop nonverbal skills by making trainees mimic behaviors from the respective repertoire of each of the communication modes (e.g., facial expression, gesturing), deliver news, and read numbers or neutral passages in different affective states in partner or group work; furthermore, the trainees are asked to identify nonverbal skills on the video recordings of practice sessions during the feedback phases.

**Hypothesis-Generation and Decision Making:** To foster these abilities, the program offers simulations of daily situations and the development of alternatives to the behaviors executed in the microtraining during the feedback sessions (Zifreund, 1966).

**Capacity to Carry Out Actions Skillfully: Practice in Laboratory Settings.** As mentioned above, the laboratory practice sessions are integrated into the program as an important component. They represent opportunities to carry out the actions learned before in the course cognitively and suggested by the hypotheses. They include refining skills and learning how to use them appropriately and effectively.

The settings for practice are constrained, experimental, so that trainees can introduce controlled,

planned variations and obtain focused feedback on their effects (Klinzing & Floden, 1990). They take place in low risk situations that can be mastered (at least after the given opportunities for repetitions) under low pressure - but do not lack challenge. They are designed in a way that encourage and empower the trainees to feel competent and able to act because of the positive experience. The contents of the practice sessions are selected in such a way that they are out of the ordinary, gradually moving closer to more realistic setting, but all conducive to a merry atmosphere.

Thus, for each part of the training program and its goals, the trainees are offered a variety of practice sessions - in experimental settings, in a laboratory format, in randomly assigned groups of five to six peers - lasting about five minutes, with opportunities for repetition. In *part I* of the program practice consists in delivering a given, fictitious speech/oration to an imaginary great audience; in *part II* narrating self selected fairy tales or emotion loaded stories, and in *part III* presenting difficult to read fables and interpreting them nonverbally from different points of view. Because of the favourable results of two studies (*Study 5* and *7*) regarding the effects of laboratory experience on nonverbal perceptiveness and expressiveness in *Study E6*, *E8* and *E9* an additional practice session was introduced: a description of an existing or desired living room.

For each microtraining session intensive and informative feedback by videotape recordings, structured observation by the participants, and discussions are provided.

**Ability to Learn from the Execution of Behavior.** Trainees are encouraged to use reflective discussions integrated into the feedback sessions. They involve assessing whether the interactants have carried out the actions effectively and appropriately, reflecting on and evaluating the consequences of that action, and using that reflection as one basis for the next cycle of hypothesis-generating, decision-making, and testing. These reflective discussions are conducted in the groups during the feedback sessions.

The training components of the **experimental groups** consisted of all components described above (acquisition of theoretical knowledge, skill acquisition exercises, practice in experimental settings with intensive feedback, and reflective discussions in *Study E1*, *E2*, *E3*, *E4*, *E6*, *E8* and *E9*).

The **control groups** had no training at the time of the posttesting. In all studies mentioned so far, the control groups had received a similar training after their tests.

*Study E5* and *E7* were originally carried out to investigate the contribution of focused practical laboratory experiences to the improvement of nonverbal decoding and encoding abilities (Klinzing & Gerada Aloisio, 2006). These investigations were based on the same program for the improvement of nonverbal skills sketched above. The participants of the **experimental groups** received the full program. The **comparison groups** received the same treatment as the experimental groups, except that they lacked the laboratory practice. While in *Study E5*, participants worked on written materials expanding their knowledge on nonverbal behavior; in *Study E7* they had no compensatory treatment, therefore their treatment was five hours shorter. (The trainees of the comparison group had the opportunity to *practise in*

*experimental settings* with feedback, and reflective discussions *after* their posttests.

## **Testing and Evaluating the Program**

### ***Hypotheses***

The hypotheses regarding the effectiveness of the program on nonverbal skill were addressed to decoding abilities, encoding abilities, and accuracy of de-/encoding/self-realism which is an important aspect of general social competence.

#### ***1. Improvement of Decoding Ability: Accuracy in Decoding Affects:***

- 1.1 There will be no significant ( $p < .05$ ) differences between treatment conditions (nonverbal behavior training versus no training) on Nonverbal Sensitivity at the time of the posttest (assessed by the PONS in *Study E1, E2, E4, E5, E6, E7, E8 and E9*);

#### ***2. Improvement of Encoding Ability: Expressiveness and Other-Orientation:***

- 2.1 There will be no significant ( $p < .05$ ) differences between treatment conditions (nonverbal behavior training versus no training) in the performance tests at the time of the posttests on *self-rated* and *alter-rated competence*: "Expressiveness" (assessed with the RAC and SRC in *Study E1, E2, E4, E5, E6, E7, E8 and E9*);
- 2.2 There will be no significant ( $p < .05$ ) differences between treatment conditions in the performance tests at the time of the posttest on *self-rated* and *alter-rated competence*: "Other-Orientation" (assessed with the RAC and SRC in *Study E1, E2, E4, E5, E6, E7, E8 and E9*).

#### ***3. Improvement in Accuracy of Decoding and Encoding (Increase in Self-Realism as an Aspect of General Social Competence); Reduction of Discrepancies between Experienced Performance and Observed Performance:***

- 3.1 There will be no significant ( $p < .05$ ) differences between treatment conditions (nonverbal behavior training versus no training) at the time of the posttest on *Unambiguousness of Communication*" (Accuracy of De-/Encoding, Self-Realism for "Expressiveness", assessed with the RAC - SRC in *Study E1, E2, E4, E5, E6, E7, E8 and E9*);
- 3.2 There will be no significant ( $p < .05$ ) differences between treatment conditions (nonverbal behavior training versus no training) at the time of the posttest on *Unambiguousness of Communication*" Accuracy of De-/Encoding, Self-Realism for "Other-Orientation" (assessed with the RAC - SRC in *Study E1, E2, E4, E5, E6, E7, E8 and E9*);
- 3.3 There will be no significant ( $p < .05$ ) differences between pre- and posttest (*Study E3*) for Self-rated

Competence: Persuasiveness and Emotional State/Assertiveness.

***Subjects of the Experimental Studies (reported in Part II and III of this paper)***

Altogether **18** school principals (*Study E1*) and **374** undergraduate student teachers and students studying pedagogy as a major in a large German University signed up to participate in the nine intensive courses in which the studies were conducted (*Experimental Studies E2 – E9*). *Figure E1* gives a profile of the participants of the studies based on age, gender, number of semesters completed, and majors studied at the university.

For some participants data were not available for a number of reasons;; some of them could not complete the test because they had to leave the session before the test was administered, or they did not attend the session in which the test was administered, or else they had some kind of momentary indisposition.

**Figure E1: Profile of the Participants of the Experimental Studies (E1 – E9)**

<b>Study E1: School Principals (N=18)</b>						
<b>Experimental Group:</b> N = 9 (3m/6f: Age: M = 50.4)						
<b>Secondary School</b> 1 female/3 males.	<b>Elementary School</b> 4 female.	<b>Other School Types</b> 1 male				
<hr/>						
<b>Control Group:</b> N = 9 (2m/7f, Age: M = 51.0) <b>School Principals,</b>						
<b>Secondary School</b> 3 females/1male	<b>Elementary School</b> 3 females	<b>Comprehensive School</b> 1 female		<b>Other School Types</b> 1 female.		
<hr/>						
<b>Study E2. University Students: N=37/38.</b>						
<b>Majors:</b> <b>Diploma- Pädagog</b>	<b>MA</b> <b>Soziologie, Oeconomics, or Linguistics Rhetorics etc. + Pedagogy</b>	<b>Student Teachers (Secondary School)</b> <b>Philology</b>		<b>Mathematics/ Sciences</b>	<b>Philology/ Sciences</b>	<b>Sports/ Medicine Philology or Mathem./ Sciences</b>
<hr/>						
<b>Experimental Group: N=19;</b> 9 females; 10 males (Age: M=25.32 years; Semesters completed: M = 5.05)						
7	3	6	1	0	2	0
<hr/>						
<b>Control Group: N=19,</b> 11 females; 8 males (Age: M= 26.2 years)						
7	1	6	1	3	1	0
<hr/>						
<b>Study E3: University Students: N=19,</b> 17 females; 2 males (Age: M=30.7; Semesters completed: M=3.6). <i>Pre- Posttest-Design!</i>						
13	5	1	0	0	0	1
<hr/>						
<b>Study E4: University Students: N=34.</b>						
<b>Experimental Group: N=19,</b> 14 females, 5 males (Age: M=26.05; s=7.58)						
3	3	8	0	4	0	1

**Figure E1, cont.**

**Control Group: N=15;** 11 females; 4 males (**Age: M=24.80;s=3.72**)

3	0	8	2	1	0	1
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**Study E5: University Students: N=61.**

**Experimental Group: N=32,** 21 females; 11 males (Age: M=23.5, s=3.28; Semester completed: M=5.94, s=3.13).

6	6	15	0	0	4	1
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**Comparison Group: N=29,** 22 females, 7 males (Age: M=22.55, s=1.24; Sem. compl.: M=5.07).

1	7	11	2	4	3	1
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**Study E6: University Students: N=51**

**Experimental Group: N=26,** 20 females, 6 males (Age: M=25.04, s=5.81; Semester completed: M=4.42, s=2.84)

6	6	10	0	3	0	1
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**Control Group: N=25,** 17 females, 8 males (Age: M=24.95, s=5.59; Semester completed: M=4.41, s=2.51)

7	2	9	1	4	2	0
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**Study E7: University Students: N=29**

**Experimental Group: N=15;** 9 females, 6 males (Age: M=23.47, s=2.23; Semester completed: M= 4.4).

4	4	4	0	2	1	0
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**Comparison Group: N=14,** 8 females, 6 males (Age: M=22.86; s=1.96 years; Semester completed: M=4.36).

3	3	4	3	1	1	0
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**Study E8: University Students (N=70)**

**Experimental Group: N=36;** 28 females, 8 males (Age: M=25.14, s=5.41 years; 1 no information)

8	5	12	4	3	4	0
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**Control Group: N=34,** 24 females, 10 males (Age: M=23.76, s=3.17 years; no information: 1)

0	4	20	1	3	6	0
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**Study E9: University Students (N=72)**

**Experimental Group: N=36,** 29 females, 7 males (Age: M=23.24, s= 3.22 years; 2 no information)

3	3	12	6	7	3	0
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**Control Group: N=36;** 25 females, 11 males (Age: M=24.09,s=4.23 years; no information: 3)

5	4	19	2	2	1	0
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### ***Design of the Studies.***

The effects of the program were investigated using a post-test-only-control-group-design, with random assignments to the experimental conditions. In *Study E1, E2, E4, E6, E8* and *E9* the program was tested against a control group which did not have training at the time of the post-test (The control group received

a similar training based on the same program, after the tests).

For *Study E3* the number of enrolled students allowed only a *pre-experimental design*, a pre- and post-test-design in one group.

In *Studies E5* and *E7* the full program was tested against a *comparison group* which had the training program without practical laboratory experiences.

The designs can be described as follows (*Figure E2.2.1, E2.2.2, E2.2.3*; Campbell & Stanley, 1963):

**Figure E2.2.1: The Experimental Design for Study E1, E2, E4, E6, E8 and E9:**

R	X1	O1	
R	--	O2	X1

where

**R:** represents the random assignment of participants to the experimental conditions;

**X1:** represents the full training program, consisting of presentation of theoretical knowledge on nonverbal communication, skill acquisition exercises, decision making exercises, practice in experimental settings with feedback, and reflective discussions.

**X1:** represents the training based on the same program which the control group received after the tests;

--: represents no treatment;

**O1:** represents the post-tests to determine the effects of the treatment of the experimental groups; and

**O2:** represents the post-tests of the control groups.

**Experimental Design of the Studies E5 and E7:** The treatment in *Study E5* and *Study E7* consisted of the same program as sketched above. The studies only differed in the treatments of the **comparison groups**: as mentioned above, the comparison group in *Study E5* got extended theoretical background knowledge on nonverbal aspects of communication instead of laboratory practice, whereas in *Study E7* trainees had no compensatory treatment (The trainees of the comparison group got the laboratory practice after their post-tests). The designs can be described as follows (*Figure E2.2.2*):

**Figure E2.2.2: The Experimental Design for Study 5 and 7**

<b>Study E5:</b>				
R	X1	O1		
R	X2	O2	X4	
<b>Study E7:</b>				
R	X1	O3		
R	X3	O4	X4	

where

**R:** represents the random assignment of participants to the experimental conditions;

**X1** (*Study E5 and E7*): represents the full training program, consisting of presentation of theoretical knowledge on nonverbal communication, skill acquisition exercises, decision making exercises, *practice in experimental settings* with feedback, and reflective discussions;

**X2** (*Study E5*): represents the training program lacking the focused practical laboratory experiences. It consists of presentation of theoretical knowledge on nonverbal communication, skill acquisition exercises, decision-making exercises; instead of the practical laboratory experiences, participants of the comparison group worked on written materials expanding their knowledge on nonverbal behavior;

**X3** (*Study E7*): represents the training program lacking the practical laboratory experiences. The program consisted of presentation of theoretical knowledge on nonverbal communication, skill acquisition exercises, and decision-making exercises. The participants of the comparison group of *Study 2* had no compensatory treatment; therefore their treatment was five hours shorter before the post-test;

**X4** (*Study E5 and E7*) represents *practice in experimental settings* with feedback, and reflective discussions of the comparison groups *after* the post-tests;

**O1/O3** represent the post-tests to determine the effects of the experimental treatment; and

**O2/O4:** represent the post-tests of the comparison groups.

**Figure E2.2.3: The Experimental Design for Study E3**

**Study E3:**

**O1 X1 O2**

where:

**X1:** represents the full training program, consisting of presentation of theoretical knowledge on nonverbal communication, skill acquisition exercises, decision making exercises, practice in experimental settings with feedback, and reflective discussions.

**O1** represents the pre-tests to determine the abilities before the treatment;

**O2:** represents the post-tests to determine the effects of the treatment after training.

### **Data Source**

To assess the *effectiveness of the program* two criterion measures were employed. These measures were derived from two principal sources, the first being a test on *nonverbal sensitivity* the second being a *laboratory performance test* which provided estimates of trainees' behavior from self- and alter-competence ratings (Klinzing & Gerada, 2004a). A standardized end-course questionnaire was used for the evaluation of the training by the participants.

**1. The Assessment of Accuracy of Decoding.** For the assessment of *nonverbal decoding* ability the *Profile of Nonverbal Sensitivity* was used (PONS, Rosenthal et al., 1979; see above Part I).

**2. The Assessment of Encoding Ability.** *Laboratory Performance Test:* All participants of the studies were asked to conduct a performance test to determine if they were able to apply the behaviors taught. It consisted of a three-to-four-minute introductory lecture and a six-to-eight-minute moderation of a discussion on topics trainees were to select from one of their subject matter areas which had to be,

however, sufficiently general so not to interact with the trainees' area of study. The participants were given 45 minutes to prepare the lectures/discussions to be conducted in (randomly assigned) groups of four to seven peers. The laboratory performances were videotaped for feedback purposes and for further analysis. Students rated themselves and others using the *Self Rated Competence* and the *Rating of Alter Competence*.

**2.1** For the assessment the *Self-Rated-Competence* (SRC: 27 items, with five point-scales) and

**2.2** the *Rating of Alter Competence* (RAC: 27 items with five-point scales) were used, both developed and tested by Cupach & Spitzberg (1981).

Both instruments represent global ratings of verbal and nonverbal behavior. Factor-analyses revealed that these instruments measure "*Expressiveness*" and "*Other Orientation*". Reliabilities of these instruments range from 0.90 to 0.94 (Spitzberg, 1988). Also indications for validity of these instruments are reported (Spitzberg, 1988; Spitzberg & Cupach, 1983; 1985). Indications for treatment validity (Popham, 1975) can be derived from the studies of Klinzing & Rupp (1999) and Klinzing et al. (2002a; 2002b).

**2.3** In *Study 3*, for estimates of trainees' behavior in the performance test two instruments were used:

- Self-rated persuasiveness (*21-items, 6-point rating scales*),
- Emotional State/Assertiveness during the laboratory performance test (*36-items, six-point scales*) (see Schiefer, 1987; Klinzing et al., 1984).

**3. The Assessment of Accuracy of De-/Encoding or Self-Realism** was determined by computing the differences between the Self-Rated-Competence and the Rating of Alter Competence (SRC – RAC).

**4. Participant Evaluation of the Training Program.** Evaluation was administered at the end of the training, using the *Course/Instructor Evaluation Questionnaire (CIEQ)*. This instrument was developed and redeveloped by Aleamoni and coworkers (Aleamoni & Stevens, 1985). The subscales are:

- general course attitude (four items);
- method of instruction (four items);
- course content (four items);
- interest and attention (four items), and
- instructor (five items).

Information regarding reliabilities, aspects of validity, and norms are given by Aleamoni & Stephens (1986). Studies on the German version of this instrument confirm the findings of Aleamoni and coworkers (Klinzing et al., 2002b). This instrument was administered directly after the end of the training and again by mail five to six months later in *Study E2* and *E3*.

## Results

**1. Results on Decoding Ability.** The results for the *Profile of Nonverbal Sensitivity (PONS)* are summarized in *Table E1.1*.

**Table: E1.1 Results for the PONS: Means (M), Standard Deviations (s), Effect Sizes (ES) and t-Tests for the Post-tests for Study E1 (School Principals), Study E2, E4- - E9 (University Students).\*\***

Experimental Group (EG)	Comparison/Control Group (CG)	EG vs. CG	
M (s)	M (s)	t, (p)*	ES
<b>Study E1: School Principals, EG: N = 8**; CG: N = 9.</b>			
169.13 (7.90)	162.00 (5.41)	2.14 <b>0.034</b>	1.32
<b>Study E2: University Students, EG: N = 19; CG: N = 19.</b>			
180.16 (4.55)	177.00 (4.90)	2.06 <b>0.026</b>	0.64
<b>Study E4: University Students, EG: N=19; CG: N = 15.</b>			
181.37 (4.91)	177.13 (8.36)	1.84 <b>0.04</b>	0.51
<b>Study E5: University Students, EG: N=28; CG: N = 25.</b>			
183.21 (5.74)	179.88 (6.51)	1.98 <b>(0.03)</b>	0.51
<b>Study E6: University Students: EG: N=24***; CG: N=22.</b>			
181,08 (5,27)	177,86 (4,91)	2.14 <b>0.019</b>	0.66
<b>Study E7: University Students, EG: N=13; CG: N = 12</b>			
182.08) (7.29)	173.34 (7.49)	2.96 <b>(0.004)</b>	1.17
<b>Study E8: University Students, EG: N = 30; CG: N = 20</b>			
176.90 (6.12)	174.05 (7.71)	1.45 <b>0.07</b>	0.37
<b>Study E9: University Students, EG: N = 35, CG: N=34</b>			
177.11 (6.54)	173.97 (7.40)	1.87 <b>0.03</b>	0.42

\*One tailed tests. \*\*Differences in group sizes are due to the fact that data of some participants were not available and that only data of participants who took the PONS the first time were included (excluding test repetitioners, see above).

As summarized in *Table E1.1*, the results for the *Profile of Nonverbal Sensitivity* show statistically (or nearly statistical significant, *Study E8*) and practically significant differences between the experimental and control conditions in all studies, favoring the experimental groups.

**2. Results for Encoding Abilities: Self-rated Competence and Rating-of-Alter- Competence for Expressiveness and Other Orientation.** The results of these analyses for *Study E1, E2, E4 - E9* are summarized in *Table E2.1, E2.2, and E2.3.*

**Table E2.1: Results for Self-rated Competence (SRC) and Rating of Alter Competence (RAC). Means (M), Standard Deviations (s), t-Tests, and Effect Sizes (ES) for *Study 1* (School Principals) and 2, 5, 6, 7, 8, and 9 (University Students): Expressiveness.\*\***

<b><u>Study E1:</u></b> <b><u>(School Principals)</u></b>	<b>EG (N=9)</b> <b>M (s)</b>	<b>CG (N=9)</b> <b>M (s)</b>	<b>EG vs. CG</b> <b>t (p)*</b>	<b>ES</b>
<b>Self-rated Competence (SRC)</b>				
<b><i>Expressiveness</i></b>	4.10 (0.30)	3.49 (0.43)	3.45 ( <b><i>p = 0.00165</i></b> )	1.42
<b>Rating of Alter Competence (RAC)</b>				
<b><i>Expressiveness</i></b>	4.37 (0.16)	4.13 (0.26)	2.27 ( <b><i>p = 0.019</i></b> )	0.92
<b><u>Study E2:</u></b>	<b>EG (N=19)</b>	<b>CG (N=19)</b>	<b>EG vs. CG</b>	
<b>Self-rated Competence (SRC)</b>				
<b><i>Expressiveness</i></b>	3.99 (0.40)	3.39 (0.52)	3.98 ( <b><i>p = 0.00015</i></b> )	1.15
<b>Rating of Alter Competence (RAC)</b>				
<b><i>Expressiveness</i></b>	4.25 (0.31)	4.05 (0.28)	2.09 ( <b><i>p = 0.022</i></b> )	0.71
<b><u>Study E5</u></b>	<b>EG (N=28**)</b>	<b>CG (N=28**)</b>	<b>EG vs. CG</b>	
<b>Self Rated Competence (SRC)</b>				
<b><i>Expressiveness</i></b>	4.27 (0.30)	3.31 (0.62)	7.42 ( <b><i>p &lt; 0.0001</i></b> )	1.55
<b>Rating of Alter Competence (RAC)</b>				
<b><i>Expressiveness</i></b>	4.57 (0.17)	4.17 (0.33)	5.77 ( <b><i>p &lt; 0.0001</i></b> )	1.21
<b><u>Study E6:</u></b>	<b>EG (N=25**)</b>	<b>CG (N=25 )</b>	<b>EG vs. CG</b>	
<b><i>Expressiveness</i></b>	3.84 (0.43)	3.48 (0.52)	2.59 ( <b><i>p = 0.006</i></b> )	0.69
<b>Rating of Alter Competence (RAC)</b>				
<b><i>Expressiveness</i></b>	4.23 (0.22)	4.05 (0.23)	2.82 ( <b><i>p = 0.003</i></b> )	0.78
<b><u>Study E7:</u></b>	<b>EG (N=15)</b>	<b>CG (N=14)</b>	<b>EG vs. CG</b>	
<b>Self Rated Competence (SCR)</b>				
<b><i>Expressiveness</i></b>	4.02 (0.58)	3.01 (0.77)	3.96 ( <b><i>p = 0.0002</i></b> )	1.31
<b>Rating of Alter Competence (RAC)</b>				
<b><i>Expressiveness</i></b>	4.48 (0.35)	3.98 (0.28)	4.22 ( <b><i>p &lt; 0.0001</i></b> )	1.43

Table E2.1, cont.

<u><b>Study E8:</b></u>	<b>EG (N=30**)</b>	<b>CG (N=34)</b>	<b>EG vs. CG</b>	
	<b>Self-rated Competence (SRC)</b>			
<b>Expressiveness</b>	4.22 (0.35)	3.36 (0.58)	7.10 ( <i>p</i> < 0.0001)	1.48
<hr/>				
	<b>Rating of Alter Competence (RAC)</b>			
<b>Expressiveness</b>	4.45 (0.21)	4.10 (0.28)	5.51 ( <i>p</i> < 0.0001)	1.11
<u><b>Study E9:</b></u>	<b>EG (N=36)</b>	<b>CG (N=35**)</b>	<b>EG vs. CG</b>	
	<b>M (s)</b>	<b>M (s)</b>	<b>t (p)*</b>	<b>ES</b>
	<b>Self-rated Competence (SRC)</b>			
<b>Expressivität</b>	4.20 (0.43)	3.29 (0.70)	6.59 ( <i>p</i> < 0.0001)	1.30
<hr/>				
	<b>Rating of Alter Competence (RAC)</b>			
<b>Expressivität</b>	4.46 (0.30)	4.16 (0.27)	4.45 ( <i>p</i> < 0.0001)	1.11

\*One-tailed tests; EG: Experimental Group; CG: Comparison Group; \*\*Due to fairly normal lapses data were not available for some participants, see above

**Table E2.2: Results for Self-rated Competence (SRC) and Rating of Alter Competence (RAC). Means (M), Standard Deviations (s), t-Tests, and Effect Sizes (ES) for Study E1 (School Principals) and E2, E5, E6, E7, E8, and E9 (University Students): Other-Oriented\*\*.**

<u>Study E1:</u> (School Principals)	EG (N=9)	CG (N=9)	EG vs. CG	
	M (s)	M (s)	t (p)*	ES
Self-rated Competence (SRC)				
Other-Orientation	4.24 (0.28)	4.14 (0.39)	0.65 (p = 0.26*)	0.26
Rating of Alter Competence (RAC)				
Other-Orientation	4.37 (0.17)	4.29 (0.19)	1.03 (p = 0.16*)	0.42
<u>Study E2:</u>	EG (N=19)	CG (N=19)	EG vs. CG	
Self-rated Competence (SRC)				
Other-Orientation	4.10 (0.27)	4.06 (0.51)	0.31 (p = 0.38)	0.08
Rating of Alter Competence (RAC)				
Other-Orientation	4.28 (0.17)	4.13 (0.25)	2.08 (p = 0.022)	0.60
<u>Study E5:</u>	EG (N=28**)	CG (N=28**)	EG vs. CG	
Self Rated Competence (SRC)				
Other Orientation	4.34 (0.34)	3.79 (0.42)	5.27 (p = 0.0000)	1.31
Rating of Alter Competence (RAC)				
Other Orientation	4.43 (0.25)	4.10 (0.21)	5.33 (p = 0.0000)	1.32

Table E2.2, cont.

<b><u>Study E6:</u></b>	<b>EG (N=23<sup>**</sup>)</b>	<b>CG (N=25)</b>	<b>EG vs. CG</b>	
	<b>M (s)</b>	<b>M (s)</b>	<b>t (p)*</b>	<b>ES</b>
<b>Self-rated Competence (SRC)</b>				
<b><i>Other-Orientation</i></b>	4.17 (0.46)	3.93 (0.60)	1.58 ( <b><i>p = 0.06*</i></b> )	0.40
<b>Rating of Alter Competence (RAC)</b>				
<b><i>Other-Orientation</i></b>	4.11 (0.29)	4.21 (0.29)	-1.19 ( <b><i>p = 0.12*</i></b> )	-0.34
<b><u>Study E7:</u></b>	<b>EG (N=15)</b>	<b>CG (N=14)</b>	<b>EG vs. CG</b>	
<b>Self Rated Competence</b>				
<b><i>Other Orientation</i></b>	4.15 (0.29)	4.07 (0.39)	0.61 ( <i>p = 0.27</i> )	0.21
<b>Rating of Alter Competence (Rating of the Group)</b>				
<b><i>Other Orientation</i></b>	4.34 (0.30)	4.15 (0.23)	1.85 ( <b><i>p = 0.04</i></b> )	0.64
<b><u>Study E8:</u></b>	<b>EG (N=30<sup>**</sup>)</b>	<b>CG (N=34<sup>**</sup>)</b>	<b>EG vs. CG</b>	
<b>Self-rated Competence (SRC)</b>				
<b><i>Other-Orientation</i></b>	4.28 (0.39)	3.94 (0.45)	3.15 ( <b><i>p = 0.0013</i></b> )	0.62
<b>Rating of Alter Competence (RAC)</b>				
<b><i>Other-Orientation</i></b>	4.30 (0.19)	4.17 (0.21)	2.68 ( <b><i>p = 0.0048</i></b> )	0.62
<b><u>Study E9:</u></b>	<b>EG (N=36)</b>	<b>CG (N=35<sup>**</sup>)</b>	<b>EG vs. CG</b>	
<b>Self-rated Competence (SRC)</b>				
<b><i>Other-Orientation</i></b>	4.46 (0.32)	3.95 (0.53)	4.83 ( <b><i>p &lt; 0.0001</i></b> )	0.96
<b>Rating of Alter Competence (RAC)</b>				
<b><i>Other-Orientation</i></b>	4.40 (0.34)	4.22 (0.29)	2.40 ( <b><i>p = 0.009</i></b> )	0.62

\*One-tailed tests; EG: Experimental Group; CG: Comparison Group; \*\*Due to fairly normal lapses data were not available for some participants, see above.

As the results in *Table E2.1* indicate, there are significant improvements in all studies for self-rated as well as for alter-rated competence in ***Expressiveness*** due to the training. Also for ***Other-Orientation*** (*Table E2.3*) improvements could be observed in all studies: the results became statistical significant except in *Study E1*, *Study E2* for the SRC, in *Study E6* for the RAC, and in *Study E7* for the SRC.

**3. Results for for Accuracy of En-/Decoding/Self Realism (SR = RAC – SRC).** These analyses are summarized in *Table E3.1* and *E3.2* for *Expressiveness* and *Other–Orientation*.

**Table E3.1: Results for Accuracy of En-/Decoding/Self Realism (SR = RAC – SRC). Means (M), Standard Deviations (s), t-Tests, and Effect Sizes (ES) for Study E1 (School Principals), Study E2, E5, E6, E8, and E9 (University Students): Expressiveness\*\***

<b><u>Study E1:</u></b> <b><u>(School Principals)</u></b>	<b>EG (N= 9)</b> <b>M (s)</b>	<b>CG (N= 9)</b> <b>M (s)</b>	<b>EG vs. CG</b> <b>t (p)*</b>	<b>ES</b>
<b><i>Expressiveness</i></b>	0.29 (0.24)	0.64 (0.41)	2.22 ( <i>p</i> = 0.0205)	0.85
<b><u>Study E2:</u></b>	<b>EG (N=19)</b>	<b>CG (N=19)</b>	<b>EG vs. CG</b>	
<b><i>Expressiveness</i></b>	0.35 (0.35)	0.77 (0.49)	3.02 ( <i>p</i> = 0.0024)	0.86
<b><u>Study E5:</u></b>	<b>EG (N=28)</b>	<b>CG (N=28)</b>	<b>EG vs. CG</b>	
<b><i>Expressiveness</i></b>	0.36 (0.24)	0.88 (0.47)	5.27 ( <i>p</i> = 0.0000)	1.11
<b><u>Study E6:</u></b>	<b>EG (N=23)</b>	<b>CG (N=25)</b>	<b>EG vs. CG</b>	
<b><i>Expressiveness</i></b>	0.53 (0.33)	0.64 (0.52)	0.811 ( <i>p</i> = 0.21*)	0.21
<b><u>Study E7:</u></b>	<b>EG (N=15)</b>	<b>CG (N=14)</b>	<b>EG vs. CG</b>	
<b><i>Expressiveness</i></b>	0.48 (0.42)	0.98 (0.62)	2.51 ( <i>p</i> = 0.009)	0.81
<b><u>Study E8:</u></b>	<b>EG (N=30**)</b>	<b>CG (N=34**)</b>	<b>EG vs. CG</b>	
<b><i>Expressiveness</i></b>	0.34 (0.23)	0.82 (0.50)	4.83 ( <i>p</i> < 0.0001*)	0.96
<b><u>Study E9:</u></b>	<b>EG (N=36)</b>	<b>CG (N=35)</b>	<b>EG vs. CG</b>	
<b><i>Expressiveness</i></b>	0.38 (0.28)	0.92 (0.55)	5.20 ( <i>p</i> < 0.0001*)	0.98

**Table E3.2: Results for Accuracy of En-/Decoding/Self Realism (SR = RAC – SRC). Means (M), Standard Deviations (s), t-Tests, and Effect Sizes (ES) for Study E1 (School Principals), E2, E5, E6, E7, E8, and E9 (University Students): Other-Orientation\*\*.**

<b><u>Study E1:</u></b>	<b>EG (N= 9)</b>		<b>CG (N= 9)</b>		<b>EG vs. CG</b>	
<b>(School Principals)</b>	<b>M</b>	<b>(s)</b>	<b>M</b>	<b>(s)</b>	<b>t p)</b>	<b>ES</b>
<b>Other-Orientation</b>	0.26	(0.15)	0.37	(0.31)	0.96 ( <i>p</i> =0.18*)	0.36
<b><u>Study E2:</u></b>	<b>EG (N=19)</b>		<b>CG (N=19)</b>		<b>EG vs. VG</b>	
<b>Other-Orientation</b>	0.22	(0.22)	0.44	(0.35)	2.29 ( <i>p</i> =0.014*)	0.63
<b><u>Study E5:</u></b>	<b>EG (N=28**)</b>		<b>CG (N=28**)</b>		<b>EG vs. CG</b>	
<b>Other Orientation</b>	0.35	(0.25)	0.43	(0.31)	1.16 ( <i>p</i> = 0.13)	0.26
<b><u>Study E6:</u></b>	<b>EG (N=23**)</b>		<b>CG (N=25**)</b>		<b>EG vs. CG</b>	
<b>Other-Orientation</b>	0.45	(0.35)	0.58	(0.48)	1.10 ( <i>p</i> =0.14*)	0.27
<b><u>Study E7:</u></b>	<b>EG (N=15)</b>		<b>CG (N=14)</b>		<b>EG vs. CG</b>	
<b>Other Orientation</b>	0.27	(0.26)	0.34	(0.21)	0.72 ( <i>p</i> = 0.24*)	0.27
<b><u>Study E8:</u></b>	<b>EG (N=30**)</b>		<b>CG (N=34**)</b>		<b>EG vs. CG</b>	
<b>Other-Orientation</b>	0.35	(0.23)	0.43	(0.32)	1.11 ( <i>p</i> =0.14*)	0.25
<b><u>Study E9:</u></b>	<b>EG (N=36)</b>		<b>CG (N=35**)</b>		<b>EG vs. CG</b>	
<b>Other-Orientation</b>	0.31	(0.28)	0.49	(0.38)	2.32 ( <i>p</i> = 0.012*)	0.47

\*One-tailed tests; EG: Experimental Group; CG: Comparison Group; \*\*Due to fairly normal lapses data were not available for some participants, see above.

As the results in *Table E3.1 and E3.2* demonstrate, Accuracy of En-/Decoding/Self Realism could be improved in all studies for Expressiveness and Other-Orientation. The results became statistically significant for **Expressiveness** except in *Study E6*. For **Other Orientation** (ARC - SRC), however, results became statistical significant only in *Study E2* and *E9*. Effect sizes show that in most cases the findings are also practically significant.

Results for *Study E3* are summarized in *Table E2.3*

**Table E2.3: Results for Self-rated Competence: Persuasiveness and Emotional State/Assertiveness. Means (M), Standard Deviations (s), t-Tests, and Effect Sizes (ES) for Study 3 (University Students).**

<b><i>Study E3:</i></b>	<b>Pretest (N=19) M (s)</b>	<b>Posttest (N=19) M (s)</b>	<b>Pretest vs. Posttest t (p)</b>	<b>ES</b>
<b>Self Rated Competence: Persuasiveness</b>				
<b><i>Factor I: “Power”</i></b>	<b>32.63 (5.44)</b>	<b>29.28 (5.88)</b>	<b>2.41 (p=0.026) (df=18)</b>	<b>0.57</b>
<b><i>Factor II: “Social Attraction”</i></b>	<b>25.47 (4.39)</b>	<b>21.05 (4.45)</b>	<b>5.34 (p=0.0001) (df=18)</b>	<b>0.99</b>
<b>Self-Rated Competence: Emotional State/Assertiveness</b>				
<b><i>Total</i></b>	<b>61.68 (9.44)</b>	<b>53.16 (9.41)</b>	<b>3.91 (p = 0.001) (df=18)</b>	<b>0.90</b>

Lower values = higher “Power”, “Social Attraction” or Emotional State/Assertiveness. Two-tailed tests

The results as summarized in *Table E2.3* show improvements in both factors and in the total of self-rated persuasiveness (“Power”, “Social Attraction”) as well as in Emotional State/Assertiveness.

**4. Evaluation by the Participants: Results from the Course/Instructor Evaluation Questionnaire (CIEQ) for Study 1 -9.** The results are summarized in *Table E4.1*, *E4.2* and *E4.3*.

**Table 4.1: Results for the Participant Evaluation (CIEQ). Means, Standard Deviations, t-Tests, and Effect Sizes (ES) for the Post-tests of the Experimental (EG) and the Control Group (CG) of Study E1 (School Principals), E2, E3, E4, E6, E7, E8, and E9 (University Students).\*\***

Sub-Scales	Study E1 School Principals (N=9/9)		Study E2 Students (N=19/18*)		Study E3 U-Students (N=19)	Study E4 U-Students (N=19/15)		Study E6 U-Students (N=26/25)		Study E8 U-Students (N=36/35)		Study E9 U-Students (N=35/34)	
	EG	CG	EG	CG	EG	EG	CG	EG	CG	EG	CG	EG	CG
	M (s)	M (s)	M (s)	M (s)	M (s)	M (s)	M (s)	M (s)	M (s)	M (s)	M (s)	M (s)	M (s)
<b>General Course Attitude</b>	<b>1.75</b> <b>(0.56)</b>	<b>1.08</b> <b>(0.18)</b>	<b>1.36</b> <b>(0.33)</b>	<b>1.15*</b> <b>(0.21)</b>	<b>1.20</b> <b>(0.34)</b>	<b>1.63</b> <b>(0.45)</b>	<b>1.17**</b> <b>(0.26)</b>	<b>1.22</b> <b>(0.29)</b>	<b>1.33</b> <b>(0.49)</b>	<b>1.11</b> <b>(0.15)</b>	<b>1.11</b> <b>(0.20)</b>	<b>1.09</b> <b>(0.18)</b>	<b>1.18</b> <b>(0.25)</b>
<b>Method of Instruction</b>	2.31 (0.92)	1.42 (0.32)	1.39 (0.34)	1.29 (0.25)	1.38 (0.33)	1.68 (0.38)	1.32** (0.32)	1.44 (0.30)	1.43 (0.33)	1.33 (0.27)	1.31 (0.28)	1.29 (0.29)	1.41 (0.33)
<b>Course Contents</b>	1.89 (0.64)	1.36 (0.31)	1.46 (0.34)	1.29* (0.28)	1.43 (0.22)	1.58 (0.30)	1.27** (0.24)	1.55 (0.25)	1.47 (0.32)	1.44 (0.29)	1.33 (0.28)	1.29 (0.29)	1.41 (0.33)
<b>Interest and Attention</b>	1.47 (0.36)	1.14 (0.18)	1.38 (0.39)	1.19* (0.22)	1.26 (0.27)	1.57 (0.40)	1.20** (0.32)	1.30 (0.21)	1.51* (0.39)	1.40 (0.28)	1.42 (0.27)	1.21 (0.24)	1.35* (0.30)
<b>Instructor</b>	1.69 (0.52)	1.27 (0.22)	1.35 (0.33)	1.22* (0.19)	1.41 (0.24)	1.67 (0.50)	1.28** (0.26)	1.34 (0.26)	1.43 (0.31)	1.33 (0.28)	1.25 (0.21)	1.17 (0.26)	1.24 (0.23)
<b>Total</b>	<b>1.82</b> <b>(0.54)</b>	<b>1.25</b> <b>(0.16)</b>	<b>1.39</b> <b>(0.28)</b>	<b>1.23*</b> <b>(0.40)</b>	<b>1.33</b> <b>(0.21)</b>	<b>1.61</b> <b>(0.34)</b>	<b>1.25**</b> <b>(0.24)</b>	<b>1.37</b> <b>(0.20)</b>	<b>1.44</b> <b>(0.29)</b>	<b>1.32</b> <b>(0.18)</b>	<b>1.28</b> <b>(0.15)</b>	<b>1.21</b> <b>(0.17)</b>	<b>1.30*</b> <b>(0.20)</b>

\*Two tailed tests; \*p=0.05, \*\* p< .001; 1 = strongly positive; 4 = strongly negative. \*\*Due to fairly normal lapses data were not available for some participants, see above.

The results, as summarized in *Table E4.1*, show that on a whole the training was rated favorably by the trainees. The university students in the experimental group (*Study E2*), who had one more day for the training, evaluated this course more favorably than the school principals. Not only school principals but also university students participating in the control groups who got the same training as the experimental group *after* their testing rated the course very favorably - significantly more favorably than those in the experimental groups. This result is repeated in *Study E4*. Based on the favorable findings from two experiments (*Study E5* and *E7*, see below) an additional opportunity for practice in a laboratory setting was introduced (by reducing the theoretical background knowledge input); one of the effects was that the differences in the evaluation between the experimental and control groups disappeared in *Study E8* and *E9* (The lower ratings of the control group in *Study E6* may be due to the fact that in this course the additional practice opportunity could not be conducted with the said group).

#### ***Results of the Evaluation of the Training by the Participants for Study E5 and E7***

Participants in the experimental investigation on the contribution of laboratory practice in experimental settings evaluated the program with the CIEQ directly after the end of their training (*Study 5* and *7*). In *Table E4.2* the results are summarized.

***Table E4.2: Results for the Participant Evaluation (CIEQ) after Training. Means, Standard Deviations (s), and t-Tests for Study E5 and E7 (Experimental Group: EG; Comparison Group: CG).***

<b><i>Subscales</i></b>	<b><i>Study E5</i></b>				<b><i>Study E7</i></b>			
	<b>EG</b>	<b>CG</b>	<b>EG/CG</b>		<b>EG</b>	<b>CG</b>	<b>EG/CG</b>	
	<b>(N=32)</b>	<b>(N = 29**)</b>			<b>(N=15)</b>	<b>(N=14)</b>		
	<b>M</b>	<b>M</b>	<b>t*</b>	<b>ES</b>	<b>M</b>	<b>M</b>	<b>t*</b>	<b>ES</b>
	<b>(s)</b>	<b>(s)</b>	<b>p</b>	<b>Cohen's D</b>	<b>(s)</b>	<b>(s)</b>	<b>p</b>	<b>Cohen's D</b>
<b>General Course Attitude</b>	<b>1.15</b> <b>(0.23)</b>	<b>1.10</b> <b>(0.26)</b>	<b>0.72</b> <b>0.48</b>	<b>0.19</b> <b>0.18</b>	<b>1.17</b> <b>(0.35)</b>	<b>1.21</b> <b>(0.22)</b>	<b>0.44</b> <b>0.67</b>	<b>0.18</b> <b>0.16</b>
<b>Method of Instruction</b>	1.23 (0.28)	1.28 (0.35)	0.62 0.54	0.14 0.16	1.32 (0.35)	1.38 (0.24)	0.53 0.60	0.25 0.20
<b>Course Content</b>	1.42 (0.29)	1.28 (0.24)	1.99 0.05	0.58 0.51	1.55 (0.32)	1.45 (0.31)	0.89 0.38	0.32 0.33
<b>Interest/Attention</b>	1.42 (0.28)	1.34 (0.27)	1.21 0.23	0.30 0.31	1.42 (0.34)	1.52 (0.21)	0.97 0.34	0.48 0.36
<b>Instructor</b>	1.31 (0.26)	1.17 (0.19)	2.39 0.02	0.74 0.61	1.19 (0.35)	1.21 (0.21)	0.25 0.80	0.10 0.09
<b>Total</b>	<b>1.31</b> <b>(0.21)</b>	<b>1.23</b> <b>(0.18)</b>	<b>1.52</b> <b>0.135</b>	<b>0.45</b> <b>0.39</b>	<b>1.32</b> <b>(0.31)</b>	<b>1.36</b> <b>(0.13)</b>	<b>0.49</b> <b>0.63</b>	<b>0.31</b> <b>0.18</b>

\*two-tailed tests; 1 = strongly positive; 4 = strongly negative. \*\*Due to fairly normal lapses data were not available for some participants, see above.

The results as summarized in *Table E4.2* show that the trainees in the experimental and comparison groups rated the training very positively, after they had the *full treatment* (the comparison group got the practice after the PONS, and then evaluated the course with the CIEQ). In *Study E5* the participants of the comparison group rated the course content and the instructor significantly more positively than those in the experimental group. (The comparison group received extra written material and instructions by the instructor on nonverbal decoding and encoding).

The Course/Instructor Evaluation Questionnaire was again administered six months later by mail in *Study E2* and *E3*. 29 participants of *Study E2* and 15 participants of *Study E3* responded to the administration of the CIEQ by mail. The results are summarized in *Table E4.3*.

**Table E4.3: Results for the Participant Evaluation (CIEQ) Directly after Training and Six or Four Months Later. Means, Standard Deviations, t-Tests, and Correlation Coefficients for Study 2 and 3: University Students (Data from the Experimental + Control Group).**

Subscale:	Study E2: (University Students)		Study E3 (University Students)	
	CIEQ adminis- tered at the end of the training (N=37)	CIEQ adminis- tered 6 months after the end of the training (N = 29)	CIEQ adminis- tered at the end of the training (N = 19)	CIEQ adminis- tered 4 months after the end of the training (N = 15)
	M (s)	M (s)	M (s)	M (s)
General Course Attitude	1.26 (0.29)	1.19 (0.26)	1.20 (0.34)	1.29 (0.43)
Method of Instruction	1.35 (0.30)	1.39 (0.35)	1.38 (0.33)	1.46 (0.41)
Course Contents	1.38 (0.32)	1.35 (0.28)	1.43 (0.22)	1.38 (0.38)
Interest and Attention	1.29 (0.33)	1.28 (0.24)	1.26 (0.27)	1.33 (0.31)
Instructor	1.27 (0.26)	1.32 (0.29)	1.41 (0.24)	1.45 (0.35)
<b>Total</b>	<b>1.31</b> (0.25)	<b>1.30</b> (0.22)	<b>1.33</b> (0.21)	<b>1.38</b> (0.30)

Four-point-scales: 1 = strongly positive; 4 = strongly negative

The results, as summarized in *Table E4.3*, show that the positive evaluation could still be observed six months after the end of the training.

## Summary of Part II

Results from the *experimental (E) studies* to test the effectiveness of the program revealed consistently considerable and statistically significant improvements for nonverbal *decoding* and *encoding* abilities. The training was rated very favorably by the participants.

### Part III:

## The Relationship of Nonverbal Skill to Selected Personality Dimensions

### Introduction

As mentioned above, one of the major attractions of communication-training in experimental laboratory settings is - unlike the complexity inherent in real situations - the provision of a favourable climate for precise research. Thus, experimental laboratory settings designed to improve aspects of communication and teaching are well suited to being a tool of experimental examination since they inherently provide control and manipulation of variables. Usually in Laboratory Training like Microteaching, the immense complexity is simplified, the large number of students in typical classrooms, the length of time devoted to classroom sessions, and the complex nature of variables inherent in any classroom situation are reduced (Allen, & Ryan, 1969, 110).

*"Microteaching was born of an experiment. From its very beginning, it has been used as a means of research. Many aspects of microteaching that render it valuable as a training technique also render it valuable as a research tool. Research in education is perhaps more difficult than research in any other field because of the many variables involved in the teaching-learning process. However, these many variables can, with the aid of microteaching, be sorted out. Many of the complexities of classroom teaching can be reduced, thus allowing the researcher to analyze specifics more closely. The researcher has great control over practice in microteaching. Variables such as time, content, students, and teaching techniques can easily be manipulated."* (Allen & Ryan, 1969, 8).

These settings are often applied to investigate experimental hypotheses that contribute to the scientific base from which laboratory training methods were developed. Not only are they applied to investigate *optimal training procedures* (e.g., McDonald, 1973; Klinzing, 2002; Klinzing, & Gerada Aloisio, 2006) but also to enrich the research base for training *contents* and *objectives*.

Following this common practice (Klinzing, 1982; Klinzing, Klinzing-Eurich & Floden, 1989) experimental hypotheses aimed at confirming, or clarifying inconsistencies in earlier findings of the training program contents were investigated.

### Purpose of Studies of Part III

Although, in the training programs used for the present studies, the successful training approaches referred to were focused on manifest abilities (specific aspects of nonverbal sensitivity and behaviours

related to expressiveness), it was assumed that their successful training may serve as a foundation from which positive changes can flow on consequentially to influence global personality dimensions (Klinzing & Jackson, 1987). The present studies aim at understanding the link between nonverbal skill (decoding and encoding abilities) and selected personal dispositions/personality dimensions considered as important for social life and teaching, as examined in the foregoing correlational studies: “Charisma”, Extraversion, (Non-) Directiveness, Self-efficacy, and Competence and Control Orientations.

## **Rationale**

Research already offers findings of some relationships between psychosocial and personality dimensions and their social interactional counterparts in terms of nonverbal sensitivity and expressiveness (see Part I); however, these findings come from studies predominately conducted in the USA with some of them replicated and expanded in the German context (see above, Part I of this paper). And, above all, this research is correlational. The question remains: “What is the condition/cause and effect?” Do, for example, extraverts become more nonverbally sensitive and expressive? Do nonverbal sensitive and expressive persons become extraverts? Or do the two concepts develop from the same underlying forces? For the older research it was *“axiomatic that characteristics of the communicator will affect the nature of messages produced.”* (Giles & Street, 1985, 228; see also Dunkin & Biddle, 1974). In line with the dynamic interactionism, however, not only actions, their results and consequences influence interactional situations but these situations may also have retroactive effects on related action-relevant personality dimensions (Krampen, 1991). Personality dimensions as generalizations over classes of actions and life situations become for the participants, more the source of behavior in novel, unusual situations than in routine situations with habitual, “frozen” behaviors. An unusual, novel training environment, as it was offered in the training courses described above, seem to be particularly appropriate then for approaching aspects of global personality (Krampen, 1991; Calabrese, 1999; Calabrese & Markowitsch, 2003).

Strictly speaking, the evidence from the studies reported here is not experimental since, rather than the aspect itself (nonverbal skill), the antecedents (the training) of an important aspect of communication were manipulated. *“But surely evidence collected under these conditions is stronger than evidence generated from nonmanipulative field surveys.”* (Dunkin & Biddle, 1974, 446).

## **Hypotheses**

1. There will be no significant ( $p < .05$ ) differences between treatment conditions (nonverbal behavior training versus no training) at the time of the posttest on “Charisma/Spirit” (assessed with the ACT in Study E5 - E9);
2. There will be no significant ( $p < .05$ ) differences between treatment conditions at the time of the posttest on Directiveness (rigid, imposing attitudes, assessed with the F-D-E in Study E3, E4, E6, E7, and E8);
3. There will be no significant ( $p < .05$ ) differences between treatment conditions (nonverbal behavior training versus no training) at the time of the posttest on Extraversion (assessed with the F-D-E in

*Study E3, E4, E6, E7, and E8*);

4. There will be no significant ( $p < .05$ ) differences between treatment conditions (nonverbal behavior training versus no training) at the time of the posttest on locus-of-control-orientations (assessed with the FKK in *Study E8* and *E9*); and
5. There will be no significant ( $p < .05$ ) differences between treatment conditions (nonverbal behavior training versus no training) at the time of the posttest on *self-efficacy* (assessed with the FEW in *Study E9*).

### **Methods and Data Source**

**Subjects.** Altogether the 374 undergraduate student teachers and students studying pedagogy as a major who had participated in the training studies (see above, Part II of this paper) participated also in the data collection regarding personality dimensions and attitudes. *Figure E1* (see above, Part II) gives a profile of the participants of all studies based on age, gender, number of semesters completed, and majors studied at the university.

### **Data Source**

To investigate the flow of improvements of nonverbal skill onto personality dimensions four tests were administered:

1. the **Affective Communication Test** (ACT, 13 Items, nine-point scales, Friedman et al., 1980 see above, Part I of the paper);
2. the **Questionnaire of Directiveness** (Bastine, 1971: rigid, or imposing attitudes and extraversion, 32 items, six-point-scales, see above, Part I of the paper);
3. the **Questionnaire of Control- and Competence Orientation** (Krampen, 1991; 32 items, six-point-scales, see above, Part I of the paper);
4. the **Self-Efficacy Scale** (Schwarzer, Mueller, & Greenglass, 1999; 10 items, four-point-scales, see above, Part I of the paper).

All data sources used in the studies possess sufficient validity and reliability.

### **Data Analysis**

The data for the five hypotheses were analyzed using t-tests. It was hypothesized that all comparisons would be at the  $p < 0.05$  level of confidence.

## **Results**

**1. Results for Spirit/"Charisma".** The results for spirit/"charisma" (ACT) are summarized in *Table EE1* for *Study E5 - E9*.

**Table EE1: Results for “Spirit”/”Charisma” (ACT). Means (M), Standard Deviations (s), t-Tests, and Effect Sizes (ES) for Study E5 – E9 (University Students). (Experimental Group: EG; Comparison-/Control Group: CG)**

<b><u>Study E5</u></b>	<b>EG (N=32)</b> <b>M (s)</b>	<b>CG (N=29**)</b> <b>M (s)</b>	<b>EG vs. CG</b> <b>t (p)*</b>	<b>ES</b> <b>Cohen's D</b>
	81.94 (13.90)	74.72 (12.34)	2.13 ( $p = 0.002$ )	0.52 0.55
<b><u>Study E6</u></b>	<b>EG (N=26)</b> <b>M (s)</b>	<b>CG (N=25**)</b> <b>M (s)</b>	<b>EG vs. CG</b> <b>t (p)*</b>	<b>ES</b> <b>Cohen's D</b>
	81.38 (11.19)	76.52 (13.38)	1.41 ( $p=0.07$ )	0.36 0.40
<b><u>Study E7</u></b>	<b>EG (N=15)</b> <b>M (s)</b>	<b>CG (N=14)</b> <b>M (s)</b>	<b>EG vs. CG</b> <b>t (p)*</b>	<b>ES</b> <b>Cohen's D</b>
	80.07 (10.33)	65.79 (14.31)	3.10 ( $p=0.002$ )	0.997 1.15
<b><u>Study E8</u></b>	<b>EG (N=36)</b> <b>M (s)</b>	<b>CG (N=34**)</b> <b>M (s)</b>	<b>EG*** vs. CG</b> <b>t (p)*</b>	<b>ES</b> <b>Cohen's D</b>
	82.19 (13.84)	76.76 (14.34)	1.61 ( $p = 0.055$ )	0.38 0.39
<b><u>Study E9</u></b>	<b>EG (N=36)</b> <b>M (s)</b>	<b>CG (N=35**)</b> <b>M (s)</b>	<b>EG vs. CG</b> <b>t (p)*</b>	<b>ES</b> <b>Cohen's D</b>
	84.36 (13.88)	76.20.79 (12.46)	2.60 ( $p=0.006$ )	0.65 0.62

\*One-tailed tests; EG: Experimental Group; CG: Control Group; \*\*Due to fairly normal lapses data were not available for some participants, see above. \*\*\*The smaller improvement of the Experimental group might be due to the fact that, due to organizational reasons, this group got the ACT **before** the laboratory performance test, thus they lacked one practical experience.

The results, as summarized in *Table EE1*, show consistently significant differences between the treatment conditions favouring the experimental groups for “Charisma”/”Spirit” (Affective Communication Test, ACT) in all studies where this test was administered. Thus, the training has a considerable effect on the improvement of “Charisma”.

**2/3. Results for Directiveness and Extraversion.** The results for *Directiveness* and *Extraversion* (FDE) are summarized in *Table EE2/EE3* for Study E2, E3, E4, E6, E7, and E8.

**Table EE2/EE3: Results for Directiveness (Rigid, Imposing Attitudes) and Extraversion. Means (M), Standard Deviations (s), t-Tests, and Effect Sizes (ES) for Study E2, E3, E4, E6, E7 and E8 (University Students)\*\***

<b><u>Study E2:</u></b>	<b>EG (N=19) M (s)</b>	<b>CG (N=19) M (s)</b>	<b>EG vs. CG t (p)*</b>	<b>ES Cohen's D</b>
<b><i>Directiveness</i></b>	<b>- 8.37 (11.16)</b>	<b>-12.16 (8.62)</b>	<b>1.17 (p = 0.12)</b>	<b>0.31</b>
<b><i>Extraversion</i></b>	<b>25.21 (14.73)</b>	<b>16.95 (12.22)</b>	<b>1.88 (p = 0.04)</b>	<b>0.68</b>
<b><u>Study E3:</u></b>	<b>Posttest (N=17**) M (s)</b>	<b>Pretest (N=19) M (s)</b>	<b>Posttest vs. Pretest t (p)*</b>	<b>ES Cohen's D</b>
<b><i>Directiveness</i></b>	<b>-13.88 (9.16)</b>	<b>-13.26 (7.31)</b>	<b>0.12 (p = 0.45) (df=16)</b>	<b>0.08 0.03</b>
<b><i>Extraversion</i></b>	<b>20.06 (11.23)</b>	<b>16.37 (11.00)</b>	<b>2.95 (p = 0.005) (df=16)</b>	<b>0.34 0.23</b>
<b><u>Study E4:</u></b>	<b>EG (N=19) M (s)</b>	<b>CG (N=15**) M (s)</b>	<b>EG vs. CG t (p)*</b>	<b>ES Cohen's D</b>
<b><i>Directiveness</i></b>	<b>-4.16 (14.52)</b>	<b>-8.54 (14.88)</b>	<b>0.86 (p = 0.20) (df=32)</b>	<b>0.30 0.30</b>
<b><i>Extraversion</i></b>	<b>28.26 (11.77)</b>	<b>19.60 (14.17)</b>	<b>1.95 (p = 0.03) (df=32)</b>	<b>0.61 0.67</b>
<b><u>Study E6:</u></b>	<b>EG (N=25**) M (s)</b>	<b>M (s)</b>	<b>CG (N=25) t (p)*</b>	<b>EG vs. CG ES Cohen's D</b>
<b><i>Directiveness</i></b>	<b>-7.64 (12.16)</b>	<b>-6.96 (12.88)</b>	<b>0.19 (p = 0.43) (df=48)</b>	<b>0.05 0.05</b>
<b><i>Extraversion</i></b>	<b>29.72 (9.08)</b>	<b>25.52 (10.17)</b>	<b>1.54 (p = 0.06) (df=48)</b>	<b>0.41 0.44</b>
<b><u>Study E7:</u></b>	<b>EG (N=15) M (s)</b>	<b>CG (N=14) M (s)</b>	<b>EG vs. CG t (p)*</b>	<b>ES Cohen's D</b>
<b><i>Directiveness</i></b>	<b>-8.40 (9.06)</b>	<b>-12.93 (11.06)</b>	<b>1.21 (p = 0.12) (df=27)</b>	<b>0.41 0.45</b>
<b><i>Extraversion</i></b>	<b>26.73 (9.42)</b>	<b>12.36 (12.07)</b>	<b>3.59 (p = 0.0007)</b>	<b>1.19 1.33</b>
<b><u>Study E8:</u></b>	<b>EG (N=35**) M (s)</b>	<b>M (s)</b>	<b>CG (N=34**) t (p)*</b>	<b>EG vs. CG ES Cohen's D</b>
<b><i>Directiveness</i></b>	<b>-5.86 (13.20)</b>	<b>-8.97 (9.95)</b>	<b>-1.10 (p = 0.14) (df=67)</b>	<b>0.35 0.26</b>
<b><i>Extraversion</i></b>	<b>30.17 (10.99)</b>	<b>24.65 (12.59)</b>	<b>1.94 (p = 0.03) (df=67)</b>	<b>0.44 0.47</b>

\*One-tailed tests; \*\*Due to fairly normal lapses data were not available for some participants, see above.

The results in Table EE2/EE3 reveal no statistically significant differences between the experimental

and control-/comparison groups for *Directiveness* (rigid, imposing attitudes). For *Extraversion*, however, significant (or nearly significant) differences could be obtained due to training in all the six studies where the “Questionnaire of Directiveness” (assessing also Extraversion) was administered.

**4. Results for Control and Competence Orientations (FKK).** The results of these analyses are summarized in *Table EE4.1* for *Study E8*, and in *Table EE4.2* for *Study E9* (University Students).

**Table EE4.1: Results for Control and Competence Orientations (FKK). Means (M), Standard Deviations (s), t-Tests, and Effect Sizes (ES) for *Study E8* (University Students).**

<b><u>Study E8</u></b>	<b>Experimental Group, EG (N=36)</b>	<b>Control Group CG (N=34*)</b>	<b>EG vs. CG</b>	
	<b>M (s)</b>	<b>M (s)</b>	<b>p, (t) **</b>	<b>ES Cohen's D</b>
<b>Self Concept of Own Competencies (SK)</b>	<b>31.47 (7.64)</b>	<b>31.44 (6.94)</b>	<b>0.49 (0.02)</b>	<b>0.004 0.004</b>
<b>Internality (I)</b>	<b>34.64 (4.26)</b>	<b>30.15 (5.54)</b>	<b>0.0002 (3.79)</b>	<b>0.81 0.91</b>
<b>Social Externality (P)</b>	<b>25.61 (5.92)</b>	<b>24.76 (6.41)</b>	<b>0.28 (0.58)</b>	<b>0.13 0.14</b>
<b>Fatalistic Externality (C)</b>	<b>22.28 (4.83)</b>	<b>23.65 (6.28)</b>	<b>0.15 (-1.03)</b>	<b>-0.21 -0.25</b>
<b>Self Efficacy (SKI) (FKK: Combined Score of SK and I)</b>	<b>66.11 (10.88)</b>	<b>61.29 (11.28)</b>	<b>0.04 (1.82)</b>	<b>0.43 0.44</b>
<b>Externality (Combined Score of P+C)</b>	<b>47.81 (9.37)</b>	<b>49.00 (10.25)</b>	<b>0.31 (-0.51)</b>	<b>0.12 0.12</b>
<b>Internality minus Externality (Difference between SKI – PC)</b>	<b>18.14 (17.62)</b>	<b>11.85 (18.71)</b>	<b>0.08 (1.45)</b>	<b>0.34 0.34</b>

\*The unequal number of participants is due to the fact that two of the members of the control group did not turn up. \*\*one-tailed tests.

**Table EE4.2: Results for Control and Competence Orientations (FKK). Means (M), Standard Deviations (s), t-Tests, and Effect Sizes (ES) for Study 9.**

<b><u>Study E9</u></b>	<b>Experimental Group; EG (N=36)</b>	<b>Control Group CG (N=36)</b>	<b>EG vs. CG</b>	
	<b>M (s)</b>	<b>M (s)</b>	<b>p, (t)*</b>	<b>ES Cohen's D</b>
<b>Self Concept of Own Competencies (SK)</b>	<b>33.17 (5.94)</b>	<b>32.08 (5.69)</b>	<b>0.22 (0.79)</b>	<b>0.19 0.19</b>
<b>Internality (I)</b>	<b>36.34 (4.39)</b>	<b>32.08 (4.12)</b>	<b>0.00003 (4.23)</b>	<b>1.03 1.00</b>
<b>Social Externality (P)</b>	<b>24.45 (5.78)</b>	<b>24.81 (5.56)</b>	<b>0.39 (0.27)</b>	<b>-0.06 -0.06</b>
<b>Fatalistic Externality (C)</b>	<b>22.92 (7.15)</b>	<b>22.31 (5.19)</b>	<b>0.34 (0.41)</b>	<b>-0.12 -0.10</b>
<b>Self Efficacy (SKI) (FKK: Combined Score of SK and I)</b>	<b>69.50 (8.76)</b>	<b>64.17 (8.81)</b>	<b>0.006 (2.58)</b>	<b>0.60 0.61</b>
<b>Externality (PC) (Combined Score of P+C)</b>	<b>47.08 (12.68)</b>	<b>47.02 (8.39)</b>	<b>0.50 (0.01)</b>	<b>-0.007 -0.003</b>
<b>Internality minus Externality (SKI – PC) (Difference between SKI and PC)</b>	<b>22.42 (19.64)</b>	<b>17.08 (14.87)</b>	<b>0.09 (1.36)</b>	<b>0.36 0.31</b>

\*\* one-tailed tests.

The results, as summarized in *Table EE4.1* and *EE4.2*, reveal consistently significant differences between the experimental conditions for *Internality* and for the combined scores *Self-efficacy* (SKI); the results for the overall score of the Competence and Control Orientations became nearly significant ( $p=0.08$ ;  $0.09$ ). Again, the improvements in nonverbal skill achieved by the training have considerable effects on aspects of Competence and Control Orientations.

**5. Results for Self-Efficacy.** The results of these analyses are summarized in *Table EE5* for *Study E6*.

**Table EE5: Results for Self-Efficacy (FEW). Means (M), Standard Deviations (s), t-Tests, and Effect Sizes (ES) for Study E9.**

<b>Study E9 (2/06)</b>	<b>Experimental Group, EG (N=36)</b>	<b>Control Group CG (N=36)</b>	<b>EG vs. CG</b>	
	<b>M (s)</b>	<b>M (s)</b>	<b>p, (t)*</b>	<b>ES Cohen's D</b>
<b>Perceived Self Efficacy (FEW)</b>	<b>30.67 (3.66)</b>	<b>28.33 (3.97)</b>	<b>0.006 (2.59)</b>	<b>0.59 0.61</b>

\*one-tailed test.

The results as summarized in *Table EE5* reveal significant differences between the experimental conditions in Self-efficacy due to the training.

## Summary and Discussion

To contribute to the scientific base for the development of a training program, six correlational studies (**Part I** of the paper) were conducted to replicate and extend earlier findings on the relationship between nonverbal skills - nonverbal sensitivity, "charisma" - and personality dimensions, namely *extraversion*, *directiveness*, *self efficacy*, and aspects/scales of *competence- and control orientations*.

The relationship between PONS and Extraversion and between PONS and Non-directiveness, as reported by Rosenthal et al. (1979) and Knapp & Hall (2002), were only replicated in two instances in the German context: a (small but significant) loss of Nonverbal Sensitivity with age (see also Klinzing & Gerada Aloisio, 2004a; 2005) and the non-existent relationship between *decoding* and *encoding* abilities. Encoding and Decoding abilities do not belong to the same aspect of communicative competence also in the German context. For nonverbal decoding abilities, the present studies can not much extend the research on the importance of nonverbal sensitivity and the characterization of skilled decoders as in the USA (see above).

For nonverbal encoding abilities, however, assessed as "charisma", largely understood as nonverbal expressiveness, findings from studies conducted in the USA (Friedman et al., 1980) could be replicated in the German context: significant relationships between this powerful variable and *extraversion* and *internality* were found. Furthermore, the actual research could be extended with positive correlations of "charisma"/expressiveness with scales of competence and control orientations, like *self-concept of own competencies*, *self-efficacy*, and a total score of competence and control orientations, *internality minus externality*.

Taking all findings together, a refined understanding of the concept "Charisma" has emerged. The ability to convey messages expressively and unambiguously (see Klinzing & Gerada Aloisio, 2007), is an

essential quality of people in various social occupations as it contributes to the quality of interpersonal relations and influences positively the success of interpersonal communication without unwanted side-effects like the desire and ability to manipulate others. Thus, the scientific base for the development of a training program could be supported and extended.

Findings from the *experimental studies* to test the effectiveness of the program (**Part II** of the paper) revealed consistently considerable and statistical significant improvements for nonverbal *decoding* and *encoding skills* (in terms of expressiveness, unambiguousness of communication, with the exception of other orientation) in all of the nine studies. The training experience was evaluated very favorably by the trainees. These results support conclusions from international research (Klinzing & Tisher, 1986; 1993; Klinzing, 2002; Klinzing & Gerada Aloisio, 2004a; 2004b). Thus, the conditions for assumed enhancements of personality dimensions (Part III of this paper) are fulfilled.

The findings of some relationships between psychosocial and personality dimensions and their social interactional counterparts in terms of nonverbal sensitivity and expressiveness come from correlational studies (Hall, 1998; Knapp & Hall, 2002; see Part I) and leave unanswered the question: "What is the condition/cause and effect?" In the older research it was assumed that personality dimensions are the source of (communicative) behavior.

Part II of this article focused on the training approach in laboratory, experimental settings and its successful improvements of nonverbal skills. In **Part III**, the training has been used as a means of research to hypothesize the causal nature of the relationship between nonverbal skills (nonverbal sensitivity and expressiveness), and selected personality dimensions (examined in foregoing correlational studies in Part I). It was hypothesized that the successful training of nonverbal skill may serve as a foundation from which positive changes can flow on consequentially to influence global personality dimensions (Klinzing & Jackson, 1987). As the results consistently demonstrated, significant differences between the experimental and control groups were found for "*Charisma*"/"*Spirit*", *Extraversion*, *Internality*, and the combined score: *Self-efficacy*. Nearly significant results were found for *overall Competence- and Control Orientations*. Also the results for *Self Efficacy*, assessed with the FEW, became statistically significant.

The improvement in nonverbal skill (nonverbal sensitivity, expressiveness, and unambiguousness of communication) which was obvious to the participants themselves, influenced related personality dimensions. The common assumption in older research that, over time and situations, relatively stable characteristics of communicators affect the nature of messages produced, is questioned. A more complex, interactional relationship may exist. Actions and their results and consequences not only influence situations but there are also retroactive effects (Krampen, 1991) in that foremost novel situations may also influence the development of global personality dimensions of the communicators. The more recent view of the relationship between communicators' characteristics and behavior, in line with the dynamic

interactionism, is supported. The experience of unfreezing the frozen, encrusted behaviors of daily routine interaction-situations, the successful development of an alternative communication mode (promising to be powerful since it is suggested by research, and experienced by the trainees as powerful), leads to changes in generalized personality dimensions. This change-process was probably supported by the empowering, novel training environment (Calabrese, 1999; Calabrese & Markowitsch, 2003), unusual for the trainees due to it being different from traditional academic mainstays, lectures and seminars at university, and ill-defined practicum. They perceived it to be highly effective, as already proven also by research.

These processes should be considered in the development of educational techniques and empowering educational situations which may interactively produce improvements in perceptiveness, behaviors, *and* then in personality dimensions.

The research and developments in the project reported here intended to overcome deficiencies of preparing professionals, particularly in the widely neglected area of nonverbal communication. At the same time, this research provides further rationale for understanding of personality dimensions as related to their perceptual and behavioral counterparts. Findings from correlational studies are not only supported and enriched but also the findings achieved under experimental conditions clarify how personality dimensions can be influenced by improvements of nonverbal communication in a novel, effective training environment.

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